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sulfur transportation supplement to

environmental assessment on

whitney canyon and carter creek natural gas processing projects

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IN REPLY REFER TO
1792 (420)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

District Office
P.O. Box 1869
Rock Springs, WY 82901

March 18, 1981

To Reader:

This final supplement to the Whitney Canyon-Carter Creek Natural Gas Processing Projects Environmental Assessment (EA) documents the analysis of the probable impacts that would be associated with the newly identified transportation of elemental sulfur alternatives. Each alternative provides for sulfur transportation from the Amoco Production Company and Chevron U.S.A., Inc., processing plants in Uinta County of southwestern Wyoming to a railroad system that would carry the sulfur to market. The impacts of the proposed new sulfur transportation alternatives have been analyzed on the basis of the best information available. It also includes copies of letters received during the draft comment period and the BLM responses to those comment letters.

Issuance of rights-of-way by the Bureau of Land Management (BLM) are needed for the construction, operation, and maintenance of these proposed projects. The environmental analysis process is intended to help public officials make decisions that are based on an understanding of the environmental consequences of the alternatives including the proposed action and to take actions that assure the protection, restoration, and/or enhancement of the affected environment.

Enclosed with this supplement is a copy of the BLM's Decision Record (DR). This DR documents the BLM decision to issue the ROWs necessary for the construction, operation, and maintenance of the sulfur transportation systems. As the individual sulfur transportation right-of-way applications are processed by the BLM, this document, along with various other data and information will be used by BLM as the basis for authorizing those particular rights-of-way.

Sincerely yours,

Donald A. Simpson

District Manager

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DECISION RECORD
ON THE SUPPLEMENT TO THE
ENVIRONMENTAL ASSESSMENT
(WY-042-EA80-15)
ON THE
WHITNEY CANYON AND CARTER CREEK NATURAL GAS PROCESSING PLANTS

Chevron U.S.A. Inc. (Chevron) and Amoco Production Company (Amoco) are requesting rights-of-way for the transport of elemental sulfur from the Whitney Canyon (Amoco) and the Carter Creek (Chevron) natural gas processing plants to a loadout terminal near existing rail facilities. Elemental sulfur is a byproduct resulting from the removal of hydrogen sulfide from well gas. The proposed facilities are necessary to transport the sulfur to market. Approximately 2,300 short tons per day of sulfur will be initially produced by these gas processing plants. Should Chevron expand its plant to the third phase, sulfur production from both plants would reach approximately 4,300 short tons per day. The present markets are in the Pacific Northwest and the Gulf Coast, and rail transportation is the only realistic and economically feasible means of primary transportation.

The Bureau of Land Management (BLM) proposes to issue the necessary rights-of-way for the construction, operation, and maintenance of a sulfur transportation system. BLM's proposal is in conformance with the Pioneer Trails Planning Unit Management Framework Plan.

ALTERNATIVES CONSIDERED

The following is a brief description of the alternatives analyzed. For more detailed information refer to the supplemental EA, Chapter I.

Skull Point Alternative

This is the companies' preferred alternative. It consists of a molten sulfur pipeline approximately 20 miles in length, running northeast from the Chevron plant site to a loadout facility adjacent to the existing Skull Point mine railroad spur. Amoco would have a truck haul road approximately 30 miles long running east from its plant site approximately 11 miles, then north to the same loadout facility serving the pipeline.

Muddy Creek No. 1 Alternative

This alternative proposes a molten sulfur pipeline approximately 12 miles long running northeast from the Chevron plant site to a rail loadout facility in Warfield Creek (following the same general routing to Warfield Creek as the Skull Point Alternative). A 20-mile railroad spur would then parallel Little Muddy Creek southeast to a junction with Amoco's truck haul road and loadout facility (Map I-2 in supplemental EA) before going on to connect with the Skull Point spur. Amoco would transport its sulfur using a 19-mile truck haul route running east and then north from its plant site to a loadout facility located adjacent to the railroad spur on the Little Muddy Creek (following the same general routing to Little Muddy Creek as in the Skull Point Alternative).

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Muddy Creek No. 2 Alternative

This alternative would be similar to Muddy Creek No. 1 except the pipeline would run an additional 4.7 miles southeast along Little Muddy Creek to a common loadout facility serving both the pipeline and the truck haul route.

Dee Ranch Road No. 1 Alternative

This route would consist of a 25-mile railroad running south along U.S. Highway 189 from the Skull Point spur, and then west to a common loadout facility located in Shurtleff Creek drainage. The loadout site would be connected to the plants by a common 17-mile molten sulfur pipeline.

Dee Ranch Road No. 2 Alternative

This alternative would consist of a 42-mile truck haul route running from the Chevron plant site south to the Amoco plant site then east and north to the loadout site (following the same route portrayed in the Skull Point Alternative).

All Pipeline Alternative

This alternative would entail pumping the molten sulfur from the Amoco plant north to the Chevron plant (10.5 miles), a common pipeline would then transport the molten sulfur to a loadout facility (the route would be identical to the pipeline's route in the Skull Point Alternative--approximately 20 miles).

No Action Alternative

Under this alternative the BLM would not issue those rights-of-way needed for the construction of a sulfur transportation system for either Chevron or Amoco.

Original Sulfur Transportation Alternatives

The alternatives addressed in the original Whitney Canyon-Carter Creek EA are no longer being considered for adoption at this time (see supplemental EA, Chapter 1, page 1).

Other Alternatives Considered

The following alternatives were considered but dropped from detailed analysis because they were either unreasonable or technically infeasible: Modified Skull Point Haul Road Route, Hill Creek, and Evanston No. 2. The specific rationale behind the elimination of each of these alternatives is contained in the supplemental EA (Chapter 1, Other Alternatives Considered).

DECISION

Option Selected and Rationale

Our decision is to issue the rights-of-way necessary for the construction, operation, and maintenance of the facilities included in the Skull Point Alternative.

Although the All Pipeline Alternative has the least long-term environmental impact of all acceptable alternatives, the Skull Point Alternative is selected as the preferred alternative. BLM believes it is the best compromise on overall environmental impacts when comparing all alternatives and their inherent interrelated problems concerned with timing, economics, and environmental effects. The alternative selection is based on the following rationale:

1. The Skull Point Alternative ranks as one of the lowest in terms of overall impacts as identified in Table I-2 of the supplemental EA and avoids those major short-term impacts inherent in the All Pipeline proposal such as: (1) the temporary storage of block sulfur aboveground, necessitating processing and removal at a later date; or, in lieu of storage, (2) the transportation of sulfur using conventional trucks on existing roads requiring a multitude of daily trips. Although the All Pipeline Alternative has, by analysis, been shown to have the least overall long-term environmental impacts, the short-term storage or transport problems, the technical and timing problems relating to the pipeline construction, and the inherent risks (spillages, maintenance, etc.) are either insurmountable or unacceptable.

2. The pipeline proposed under the Skull Point Alternative is preferred for the transportation of sulfur from the Chevron plant, as it has minimal environmental impacts and is feasible in regard to timing and construction features (grade, etc.). The short-term and long-term risks (spillages, maintenance, etc.) are undesirable but acceptable.

3. The haul road proposed under the Skull Point Alternative is the preferred transportation method for Amoco's sulfur. This transportation method has the least overall impact of all haul road alternatives analyzed and avoids those short-term impacts associated with the All Pipeline Alternative. This is substantiated in the supplemental EA (Table I-2).

4. Although the regional socioeconomic impacts resulting from these projects will essentially remain unchanged, there will be a shift of impacts from the Evanston area to the Kemmerer area, with Kemmerer becoming the focal point of the sulfur transportation impacts. The local officials in the Kemmerer Area have indicated that they desire this new industrial development (pers. comm., R. Fagnat November 1980).

5. The development of a sulfur transportation system is an integral part of the gas processing facilities associated with Whitney Canyon-Carter Creek proposals. The transportation system permits the marketing of the sulfur which is a byproduct of the gas processing procedures. The gas produced by these

facilities is needed to meet the energy requirements of the nation. Fulfilling these energy requirements is recognized as a national priority. Since the gas processing facilities have been approved and are in the construction phase, the approval of a transportation system is in order and the selection of the Skull Point Alternative over the No Action Alternative is proper.

In addition to the above rationale, other points were considered when arriving at a decision. These points are as follows:

1. The Wyoming Game and Fish Department and the National Wildlife Federation had indicated that an alternative that goes east and north to Skull Point is preferred over the original railroad proposal to Sage Junction.

2. The Wyoming Game and Fish Department stated in their response to review of the draft supplemental EA that they preferred the All Pipeline Alternative, but failing that, the Skull Point Alternative is acceptable.

Mitigating Measures Accepted

In addition to the application of the standard stipulations contained in Appendix 1 of the original EA, and those mitigating measures inherent in the companies' proposal (i.e., construction camps etc.), the following mitigating measures identified in the supplemental EA are accepted and will be incorporated into the right-of-way grants and approved construction, operation, and maintenance plans. The indicated mitigation measure number corresponds to the number assigned to the mitigation measure in the supplemental EA.

1. Topsoil removed during construction and not needed for rehabilitation of the haul road will be spread over abandoned road beds to facilitate rehabilitation of those abandoned portions. This measure will be applied to those abandoned roads that are on public land. Adoption of this measure on private land is at the discretion of the landowner.

2. Prior to construction, the companies will provide for BLM review and approval any site-specific plans that would involve rechannelization of streams. The District Engineer and District Hydrologist will review such plans and make any necessary recommendations for mitigation of anticipated impacts to the stream channels.

3. The construction timeframe for the channel modification will be negotiated by the companies with those affected water right permittees. The State Engineer's Office will be consulted to determine those water rights affected. If the channel construction would cause a temporary adverse affect upon the permittee's operations, the companies will be required to mitigate this effect by providing an alternate source of water during construction.

4. All disturbed areas no longer in use after construction will be revegetated with a seeding mixture specifically designed for the area to be applied. The seeding mixtures will be designated in the approved construction, operation, and maintenance plans.

5. Construction activity within big game crucial habitat will not be allowed between October 15 and May 15, unless authorized by the Area Manager. This will reduce harassment of wintering populations in the areas most suitable for enhancing animal survival during this stress period.

7. Construction activity within the sage grouse nesting/strutting complexes will not be allowed during the strutting and nesting period of March 1 to June 15, unless authorized by the Area Manager.

8. Construction activity within raptor buffer zones will not be allowed during the raptor nesting period of March 15 to July 1. The portion of the Skull Point Alternative that specifically will be affected by this requirement is the haul road route between survey stations 633+00 and 901+00. A raptor monitoring program will be established by BLM to study raptor movement. The company will provide funds to defray the cost of the necessary telemetry equipment.

9. Prior to issuance of the right-of-way grant for any of the sulfur transportation routes, the presence of endangered wildlife species will be evaluated by BLM. If a "may affect" determination is made, formal consultation procedures will be initiated with the Fish and Wildlife Service.

10. All prairie dog towns that would be affected by construction activities will be surveyed for black-footed ferrets. Survey techniques will be coordinated with BLM before implementation, and copies of the survey will be provided to BLM.

11. A determination of eligibility for the Oregon Trail will be obtained by BLM for those affected segments whose condition justify such an action. If found eligible, a determination of effect will be obtained, and, if appropriate, a mitigation plan developed.

12. In order to avoid an adverse effect to the Oregon Trail in section 36, T. 19 N., R. 117 W., the haul road will reflect the routing indicated on Map III-1 of the supplemental EA. This mitigation reroute would confine disturbance of the trail to the area previously compromised by the highway.

13. In order to avoid disturbance to any identified ruins of the Cumberland Town sites, the haul road will be rerouted as indicated on Map III-1 of the supplemental EA.

14. Any steep cuts required by construction will be tapered to blend with the terrain. Specific areas where this mitigation is to be applied will be designated in the approved construction, operation, and maintenance plans.

15. Specific routing of sulfur transportation systems will be negotiated and documented with Federal coal lease holders to assure that the proposed route would cause the least amount of interference with future mining operations.

16. The Wyoming State Highway Department will be provided the opportunity to review the haul road design for compatibility with the existing and future Highway 189 in terms of centerline location, drainage structures, highway safety,

and snowdrifting problem potential. Should the haul road present a problem with future highway design, the haul road will be modified to be compatible with the new design of Highway 189.

17. Headlights meeting state highway standards, will be used on the haul trucks. This would reduce some of the headlight glare that would affect the oncoming traffic where the haul road parallels Highway 189.

18. Where the haul road parallels Highway 189 on the west side and is higher than the highway, the distance separating the haul road and highway will be designed to prevent drifting of snow on the highway.

19. That portion of the Dee Ranch road from Highway 189 west to the point where the haul road turns north leaving the Dee Ranch road (approximately 3 miles) will be upgraded to BLM road standards. This would encourage people to use the Dee Ranch road instead of that portion of the haul road running north to the loadout facility.

Mitigating Measures Rejected and Rationale

6. If a sage grouse nesting/strutting complex must be entered, the actual lek center and buffer area should be avoided (Ref. Instruction Memorandum WY-81-21).

Rationale. The only 1/4 mile lek buffer area that will be affected by the Skull Point Alternative is the lek that is adjacent to the existing Dee Ranch road. This portion of the road will be upgraded. To apply this mitigating measure to an existing well-established and heavily utilized road is not necessary.

20. A system or a procedure should be developed whereby funds could be made available by the companies to the local government agencies during the construction period as early payment of future taxes. This would make monies available to the local governments during the construction period of the projects, when the majority of the socioeconomic impacts would occur.

Rationale. This mitigating measure is outside the statutory authority of BLM and was identified for consideration by State and local officials. Any assistance of this nature would have to be negotiated between the companies and local government agencies.

Additional Mitigating Measures and Rationale

1. Prior to issuance of rights-of-way grants to either Chevron or Amoco, construction, operation and maintenance plans must be submitted and approved by the BLM. These approved plans will become conditions of the grants.

Rationale. These plans are necessary to assure detailed site specific application of mitigation measures.

Monitoring

The BLM will collect data and evaluate the possible affect of the construction, operation, and maintenance of the haul road, on golden eagles nesting in the vicinity of the Little Hogsback, adjacent to the Dee Ranch road. (See Mitigation Measure No. 8.) No other monitoring needs have been identified beyond the normal compliance monitoring to be performed by BLM.

CONCLUSION

Based on the analysis of the supplemental EA (WY-042-EA80-15), we conclude that this decision and the resulting actions, as mitigated, will result in no significant impacts to the environment, and therefore conclude that no Environmental Impact Statement is necessary.

Steve Howard — 3/23/81

Area Manager, Kemmerer — Date

Donald H Sommers — 3/23/81

District Manager, Rock Springs — Date

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SULFUR TRANSPORTATION SUPPLEMENT

TO THE

WHITNEY CANYON-CARTER CREEK
NATURAL GAS PROCESSING PROJECTS EA
WY-042-EA80-15

IN

UINTA AND LINCOLN COUNTIES, WYOMING
RICH COUNTY, UTAH

MARCH 1981

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WHITNEY CANYON-CARTER CREEK
NATURAL GAS PROCESSING PROJECTS EA

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PURPOSE AND NEED

The purpose of the companies' proposed action is to provide for transport of elemental sulfur, which is derived as a byproduct in the production of marketable natural gas, from the Whitney Canyon (Amoco) and the Carter Creek (Chevron) natural gas processing plants to existing rail facilities.

The proposed facilities are necessary to transport the sulfur to market. Approximately 2,300 short tons per day of sulfur will be initially produced by these gas processing plants. Should Chevron expand its plant to the third phase, sulfur production from both plants would reach approximately 4,300 short tons per day. As the present markets are in the Pacific Northwest and the Gulf Coast, rail transportation is the only realistic and economically feasible means of primary transportation.

In May 1980, after considering public comments received during a review period for the original draft EA, the Bureau completed the EA and subsequently made a decision to grant certain rights-of-way on public land needed by these two projects. The decision was to grant Chevron right-of-way for it plant site, powerlines, pipelines, etc., and to issue a number of ancillary rights-of-way for the Amoco plant that was in the process of being constructed on private land. Also, the decision included issuance of the right-of-way needed for transporting the sulfur by a railroad from loadout sites that would be located west of the plants. The railroad would connect the loadouts to the existing Union Pacific Line to the northwest near Sage.

Subsequent to the original draft EA comment period, finalization of the EA, and the decision by the Bureau, the Wyoming Game and Fish Department voiced strong concern and opposition to the railroad that would go through a big game crucial wintering range and the possible impacts to wintering bald eagle populations. The National Wildlife Federation and the Wyoming Wildlife Federation supported the Wyoming Game and Fish Department's position.

The companies agreed to reconsider sulfur transportation methods and to identify alternatives to the rail system to Sage. Through input from the Bureau, Wyoming Game and Fish Department, and the National Wildlife Federation, the Skull Point Alternative has now been submitted by the companies as the proposed action.

CHAPTER I
DESCRIPTION OF ALTERNATIVES

INTRODUCTION

Since the preparation of the environmental assessment (EA No. WY-042-EA80-15) and decision record of the Whitney Canyon and Carter Creek Projects in May 1980, a number of new alternatives for sulfur transportation have been identified by the companies as a result of input from the public, particularly the Wyoming Game and Fish Department and the National Wildlife Federation. In addition, BLM identified an All Pipeline Alternative. See Chapter IV - Coordination in Preparation of the Proposed Action of this supplemental EA for additional information. These alternatives are being analyzed prior to the issuance of sulfur transportation rights-of-way on public lands by the Bureau of Land Management.

LEVEL OF ANALYSIS

This document is a supplement to the Whitney Canyon-Carter Creek Natural Gas Processing Projects EA (BLM Rock Springs District, Wyoming, May 1980), which is available for review at the BLM Rock Springs District Office.

This supplement identifies and analyzes new sulfur transportation alternatives which consist of various combinations of the following facilities: Molten sulfur pipeline, truck hauling route, central loadout facility, and railroad spur. Except for Skull Point, the various alternatives portrayed are systems and general routing. The Skull Point Alternative is site-specific.

ORIGINAL SULFUR TRANSPORTATION ALTERNATIVES

The alternatives addressed in the Whitney Canyon-Carter Creek EA have not been reanalyzed in this document. These alternatives are no longer being considered for adoption at this time, pending public review of this document, for one or more of the following reasons:

1. The Wyoming Game and Fish Department and the National Wildlife Federation voiced strong concerns over the potential impacts to deer populations due to loss of crucial wintering habitat. These objections caused the companies to abandon their pursuit of the Sessions Pass modification to the Sage Junction Alternative.

2. The Fish and Wildlife Service has issued a threatened and endangered species jeopardy determination concerning the possible impacts of a railroad through the bald eagle wintering roost area located in the Woodruff Lower Narrows.

3. The crossing of prime agricultural land.

4. The crossing of the Bear River and its associated riparian habitat (see Glossary).

5. Union Pacific is reluctant to accept any additional rail traffic on its heavily utilized southern east-west route, and will not guarantee timely service which molten sulfur transportation requires.

6. The added congestion of the Evanston area that would result with a railroad right-of-way through that expanding community.

NEW SULFUR TRANSPORTATION ALTERNATIVES

Skull Point Alternative

This alternative has been indicated as being the preferred alternative (Map I-1) of the companies and the Wyoming Game and Fish Department (pers. comm., Marker 1980). It consists of a molten sulfur pipeline, approximately 20 miles in length, running northeast from the Chevron plant site to a loadout facility adjacent to the existing Skull Point mine railroad spur. Amoco would have a 30.6-mile truck haul road running east from its plant site, upgrading 10.8 miles of the Dee Ranch road to a point 3 miles west of U.S. Highway 189. The proposed road would then leave the Dee Ranch road turning north to the Muddy Creek county road. The county road would be upgraded east to Highway 189 where a new road would be constructed paralleling the highway on the west side. This road would then proceed north to a loadout facility that would be located adjacent to the proposed Chevron loadout site. The loadout facilities would be located in section 25, T. 20 N., R. 117 W.

Topographic quads (7.5 minute) illustrating Chevron's proposed pipeline alignment, Amoco's truck haul road alignment, and the proposed location of the loadout facility in section 25 are available for review in BLM's Rock Springs District Office.

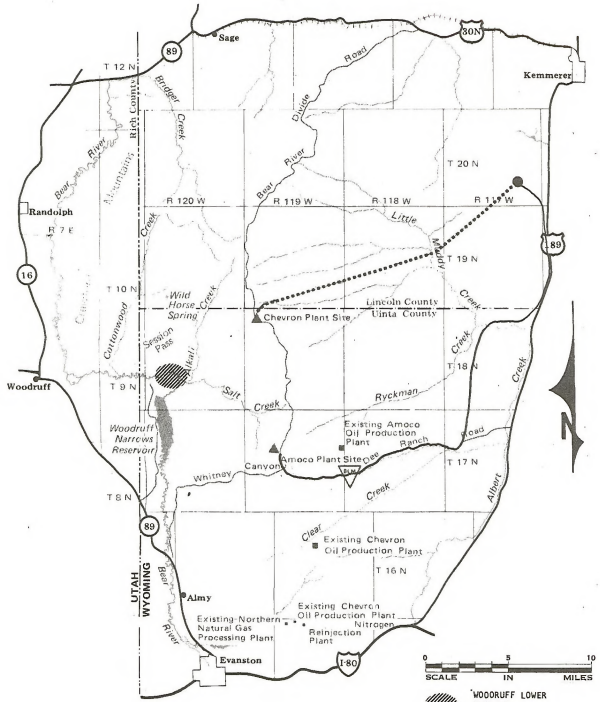
Pipeline

Chevron's proposed molten sulfur pipeline would be gravity flow in design, electrically heated, insulated, and protected with a black polyethylene outside cover. The design capacity of the pipeline would accommodate all three phases of Chevron's possible expansions.

Figures I-1 and I-2 illustrate some of the technical aspects of the sulfur pipeline, expansion loops, and the relationship of the 13.8-kv powerline (raptor proof) within the proposed 60-foot-wide right-of-way (15 feet of additional surface would be needed for construction purposes). Table I-1 liste acres of landownership involved in the right-of-way. Vehicular access under the pipeline would be provided at appropriate locations identified by the BLM and private landowners.

No access road is proposed other than the 2-track trail that now exists along a majority of the line. After construction and initial startup, monthly inspection and maintenance would be accomplished through the use of four-wheel drive vehicles, or tracked snow machines. Maintenance or snow removal on the trail is not planned.

Sulfur would be maintained in a molten state between 260° and 280° F. The pipeline would be equipped with two electrical conductor lines--one operated to maintain the temperature and the other as a backup system. If repairs were needed on the pipeline, such as to the insulation, both heating systems would be used to remelt the sulfur after completion of re-



MAP 1-1

SKULL POINT ALTERNATIVE

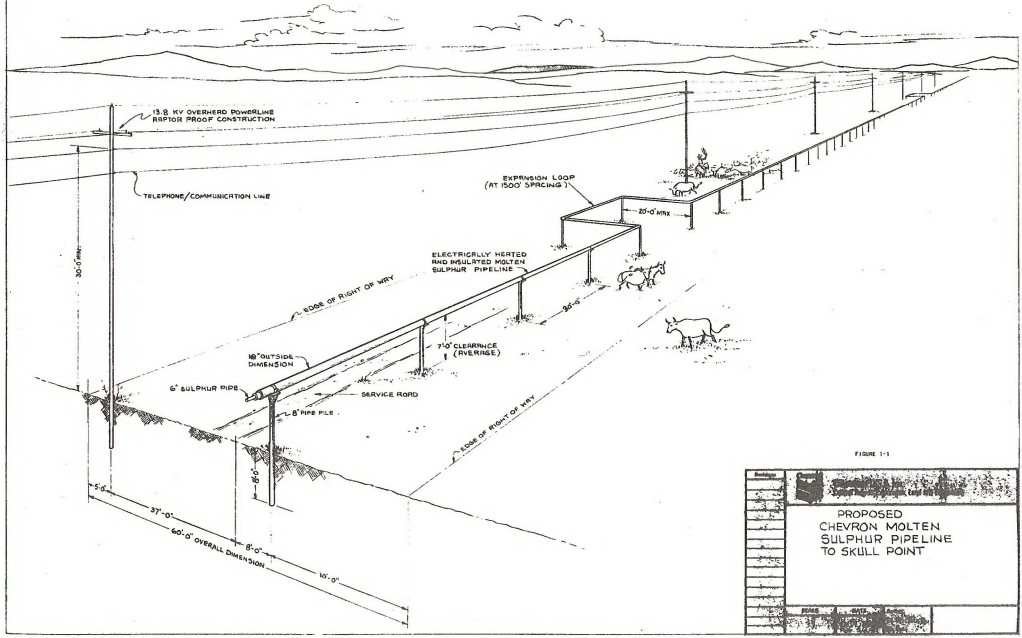
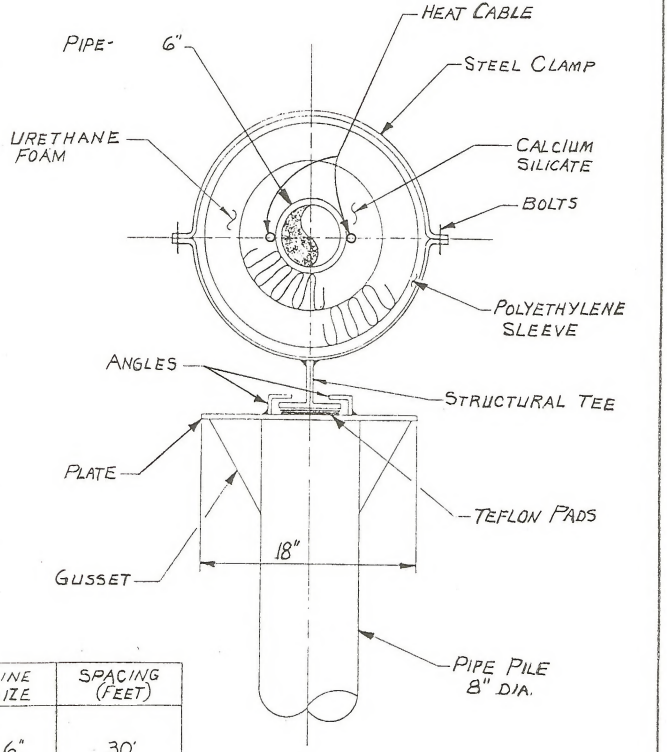


FIGURE 1-1

PROPOSED
CHEVRON MOLTEN
SULPHUR PIPELINE
TO SKULL POINT



LINE SIZE	SPACING (FEET)
6"	30'

ELEVATION

FIGURE 1-2

PREPARED FOR STEARNS-ROGER PROJECT 4182

WILLIAMS BROTHERS ENGINEERING COMPANY

A Resource Sciences company

TULSA, OKLAHOMA

CHEVRON MOLTEN SULPHUR PIPELINE
TYPICAL SUPPORT, SINGLE PIPE

Date APRIL 1980

Approved G.S.

EXHIBIT B

Table I-1

RIGHTS-OF-WAY ACREAGE BY ALTERNATIVE[1]

Alternative	Facility	Width in Feet	Length in Miles	Acreage Private	Public	State	Total
Skull Point	Chevron Pipeline	60	20.0	79	61	6	146
	Chevron Loadout	N/A	N/A	240	-	-	240
	Amoco Haul Road	100	18.6	155	57	15	227
		120	12.0	92	62	19	173
	Amoco Loadout	N/A	N/A	100	-	-	100
	Railroad	200	1.1	9	18	-	27
	Totals			675	198	40	913
Muddy Creek No. 1	Chevron Pipeline	60	11.8	60	26	-	86
	Chevron Loadout	N/A	N/A	240	-	-	240
	Amoco Haul Road	100	7.3	42	39	8	89
		120	12.0	92	62	19	173
	Amoco Loadout	N/A	N/A	100	-	-	100
	Railroad	200	20.0	432	55	-	487
	Totals			966	182	27	1,175
Muddy Creek No. 2	Chevron Pipeline	60	16.5	91	29	-	120
	Amoco Haul Road	100	7.3	42	39	8	89
		120	12.0	92	62	19	173
	Common Loadout	N/A	N/A	230	-	-	230
	Railroad	200	14.2	303	42	-	345
	Totals			758	172	27	957
Dee Ranch Road No. 1	Chevron Pipeline	60	10.5	35	37	4	76
	Common Pipeline	60	6.5	34	11	3	48
	Common Loadout	N/A	N/A	230	-	-	230
	Railroad	200	24.8	470	117	14	601
	Totals			769	165	21	955
Dee Ranch Road No. 2	Chevron Haul Road	120	10.5	71	74	8	153
	Common Haul Road	120	12.0	92	62	19	173
	Common Haul Road	100	18.6	155	57	15	227
	Common Loadout	N/A	N/A	230	-	-	230
	Railroad	200	1.1	9	18	-	27
	Totals			557	211	42	810
All Pipeline	Amoco Pipeline	60	10.5	35	37	4	76
	Common Pipeline	60	20.0	79	61	6	146
	Common Loadout	N/A	N/A	230	-	-	230
	Railroad	200	1.1	9	18	-	27
	Totals[2]			353	116	10	479

[1] This is rights-of-way acreage and not acres disturbed. Figures are presented to indicate ownership involvement under each alternative

[2] Figures do not include acreage for temporary haul road.

pairs. Outside temperature of the pipeline would be 4° to 5° F. above ambient air temperature.

Should a shutdown of the pipeline be required, it is proposed to drain the line at 3 low points into emergency blow down pits covered with doghouse-type enclosures (Figure I-3). The main pit would be located near Little Muddy Creek, the other two would be located between the Little Muddy and the loadout facility. The capacity of the 3 pits would be 1,850, 300, and 400 barrels, respectively. The liquid sulfur would be placed into the pit where upon cooling, a portable steam generator would be used to apply heat through built in steam coils to remelt the sulfur. The sulfur would then be pumped into trucks and hauled to the loadout facility.

The proposed loadout facility would be located on private land (section 25, T. 20 N., R. 117 W.) and would be similar in design to the loadout portrayed on page 14 of the original EA. Approximately 1.1 miles of a railroad spur and access road (Figure I-4) would be constructed to serve this facility. Approximately ten 100-ton railroad cars would be loaded per day for the initial phase of sulfur production (1,000 short tons per day). Approximately 10 months would be needed to construct the loadout facility and the pipeline. At the peak of the construction force, 280 workers would be housed in a temporary construction camp to be located either at the loadout site or in the Kemmerer area. An additional 200 workers would be housed at the plant construction camp. Figure I-5 illustrates construction work force projections for the Skull Point Alternative. Approximately 15 persons would be needed for an operation and maintenance work force to run the pipeline and loadout facility and they would most likely choose to live in the Kemmerer area. The pipeline and loadout is expected to cost $51.8 million of which $1-2 million would be spent locally for consumables (food, gas, oil, spare parts). Chevron projects that approximately 30% of the construction work force would come out of the local community; their wages would most likely be spent locally.

Haul Road

Amoco's proposed truck haul road would upgrade 10.8 miles of the existing Dee Ranch road and 3.7 miles of the existing Muddy Creek road. Approximately 16.1 miles of new road would be constructed. The Dee Ranch and the Muddy Creek roads basically have an existing 24-foot-wide running surface, and the proposed upgrading would consist of widening the running surface to 30 feet and paving it. Realignment of the upper 1.3 miles of Dee Ranch road would be done to eliminate excessively steep grades and achieve a maximum 5 percent grade.

A new 20-foot-wide road would be constructed from Dee Ranch road north to Muddy Creek road. This portion of the road would be used exclusively by the haul trucks and would be closed to the general public, who would be encouraged to use Highway 189. Signs warning of the safety hazards due to haul truck traffic, and "No Trespassing" signs would be posted. The route would then run east to Highway 189 following the existing Muddy Creek road, which would be upgraded. A new 20-foot-wide road would run north, paralleling Highway 189 to a loadout site adjacent to the proposed pipeline loadout site. Table I-1 depicts the right-of-way acreage involved.

Sulfur would be transported using 4-axle tractor units pulling 4-axle tanker/trailers. The units would measure approximately 11 feet wide and 70 feet long. Each unit would transport 85 short tons of sulfur per trip and would have an approximate gross vehicle weight (GVW) of 240,000 pounds.

Based on the anticipated average daily production level, approximately 16 trips (total) per day are required. To accomplish this, the trucks will normally run in convoys (two or three per convoy unit). The actual number of trips and trucks per convoy unit will vary with the actual daily production levels.

At the loadout facility, the trucks will unload into working storage tanks and from there, insulated rail cars will be loaded at an average rate of 14 per day.

For the project to be completed on schedule and align with the processing plant startup, construction on the road and loadout facility must start by mid-April 1981. A delay in completion of the transportation system could result in block mounding of sulfur at the plant site or the use of a large number of highway legal trucks. The anticipated transportation system investment is $25 million of which the haul road represents $15 million.

Construction on the road is anticipated to run from May until November 1981 and will probably require a peak work force of 100. The percentage of the project ($15 million total) spent locally will vary depending upon the location of the contractor but should account for about 30 percent of the total. The loadout facility will take approximately 10 months to construct, require a peak work force of approximately 120 men with a total cost of $10 million (50% spent locally). (See Figure I-5.)

Approximately 230,000 cubic yards of aggregate material would be needed for construction of the haul road. Proposed material sites are in the Little Muddy Creek area in section 24, T. 19 N., R. 118 W., and section 30, T. 19 N., R. 117 W.

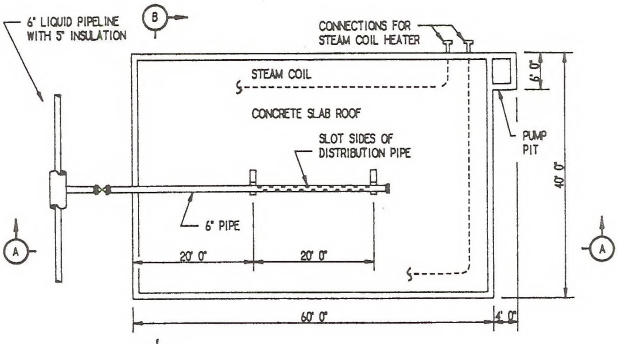
The operation and maintenance work force needed would be approximately 16 people--6 drivers, 4 service people, and 6 maintenance and operation personnel at the rail tank car loading terminal.

Muddy Creek No. 1 Alternative

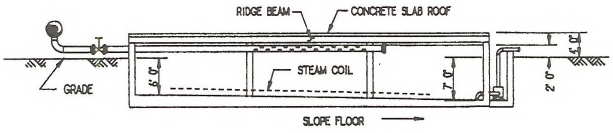
This alternative (Map I-2) proposes a molten sulfur pipeline approximately 12 miles long running from the Chevron plant site to a loadout facility in Warfield Creek (following the same general routing to Warfield Creek as the Skull Point Alternative). A 20-mile railroad spur would then run southeast to a junction with Amoco's truck haul route and loadout before going on to connect with the Skull Point spur. Amoco would transport its sulfur using a 19-mile truck haul route running from its plant site east, on the Dee Ranch road, and then north to a loadout facility located adjacent to the railroad spur coming from Chevron's loadout site (same routing to Muddy Creek from Amoco's plant site as that of the Skull Point Alternative). The haul road trucks and the pipeline would be similar in design/specifications as that identified in the Skull Point Alternative

Muddy Creek No. 2 Alternative

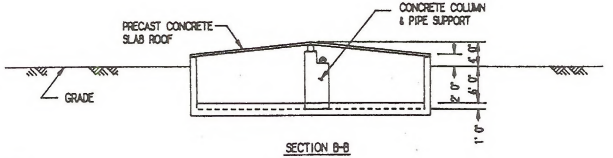
This alternative (Map I-3) would be similar to Muddy Creek No. 1 except the pipeline would run an additional 4.7 miles southeast along Muddy Creek to a common loadout facility serving both the pipeline and the truck haul route.



PLAN



SECTION A-A



SECTION B-B

NOTES:

1. DRAIN VALVE TO BE FITTED WITH ELECTRIC HEATER. THIS HEATER TO BE POWERED BY PORTABLE GENERATOR DURING BLOW DOWN OPERATION.
2. DURING NORMAL OPERATIONS 6" DRAIN PIPE WILL BE INSTALLED ON DRAIN VALVE. DRAIN VALVE WILL BE ENCLOSED, INSULATED, ELECTRICALLY TRACED, AND MONITORED.
3. TWO PIPE SUPPORT PIERS ALSO SUPPORT CONCRETE RIDGE BEAM FOR SLAB ROOF.

FIGURE 1-3

WILLIAMS BROTHERS ENGINEERING COMPANY A Resource Sciences company TULSA, OKLAHOMA	EMERGENCY BLOW DOWN PIT LIQUID SULFUR PIPELINE CHEVRON'S CARTER CREEK GAS PLANT
	Date 11-20-80
	Approved
	4377

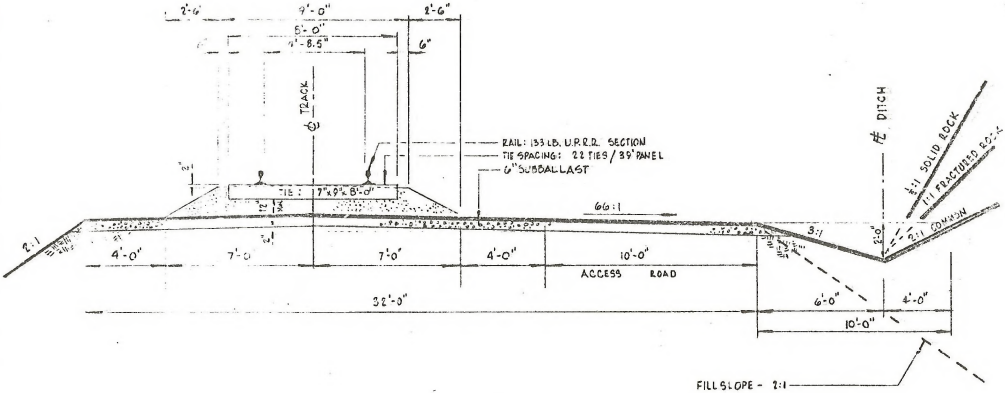


FIGURE 1-4

TYPICAL EARTHWORK SECTION N.T.S.

(PER U.P.R.R. COMMON STANDARD)

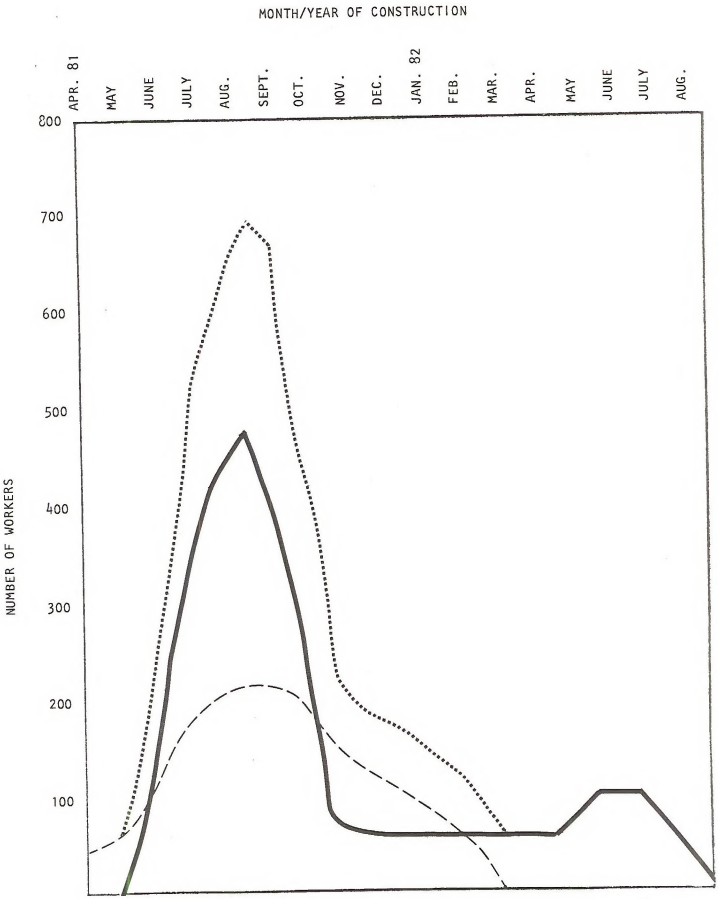
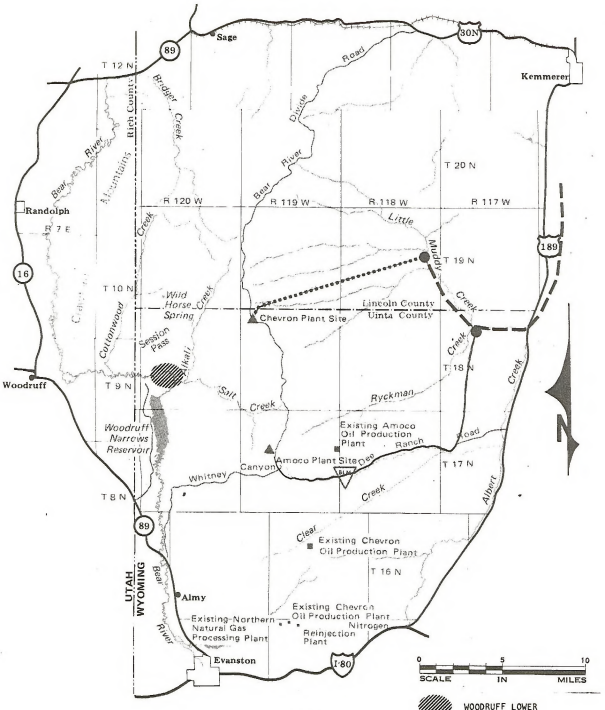
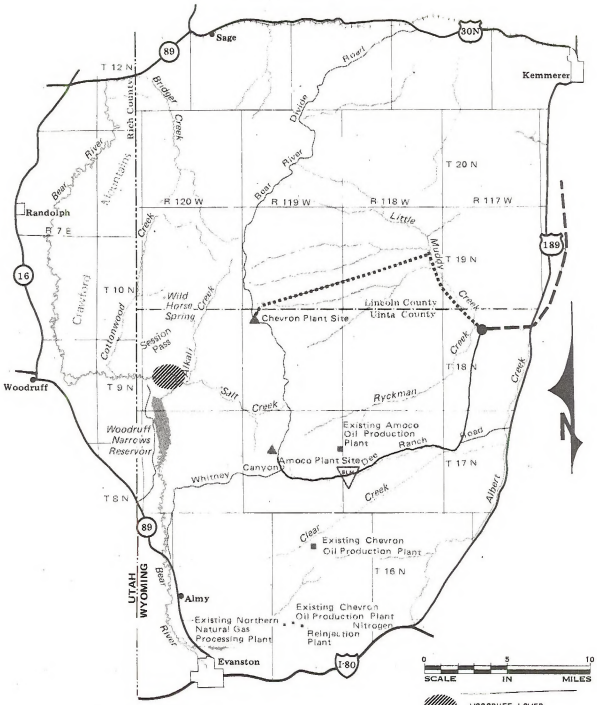


FIGURE 1-5
CONSTRUCTION WORK FORCE PROJECTIONS
SKULL POINT ALTERNATIVE



MAP 1-2

MUDDY CREEK NO. 1 ALTERNATIVE



MAP 1-3

MUDDY CREEK NO. 2 ALTERNATIVE

Dee Ranch Road No. 1 Alternative

This route (Map I-4) would be a 25-mile railroad running south along Highway 189 from the Skull Point spur, and then west, paralleling the Dee Ranch road, terminating at a common loadout facility located in Shurtleff Creek drainage.

The common loadout site would be connected to the plants by a 17-mile molten sulfur pipeline that would be similar in design as that portrayed in the Skull Point Alternative.

Dee Ranch Road No. 2 Alternative

This alternative (Map I-5) would consist of a 42-mile truck haul route running south from the Chevron plant site on the Bear River Divide road to the Amoco plant site. The truck haul route from the Amoco plant to the loadout site would follow the same route portrayed in the Skull Point Alternative. The technical specifications for the trucks used, the road design, and the loadout facility location, would also be similar.

It is estimated that approximately 30 round trips of 85 short tons each would be required to transport the initial production of sulfur from the two plants for a total of 2,131 vehicle miles per day. Should Chevron expand its plant facilities through all three phases, it would require a total of 54 round trips to transport the sulfur from both plants, totaling 3,024 vehicle miles per day.

All Pipeline Alternative

This alternative would be the pumping of the molten sulfur from the Amoco plant approximately 10.5 miles north to the Chevron plant (Map I-6). From the Chevron plant a common pipeline would transport the sulfur to a loadout facility via the same route as the pipeline in the Skull Point Alternative. The pipeline route from the Amoco plant to the Chevron plant would be expected to basically parallel the existing Bear River Divide road. Pipeline and rights-of-way designs would be expected to be similar to that of the Skull Point Alternative.

It is anticipated that the design, engineering, and construction of such a pipeline system would take approximately two construction seasons to complete (allowing 10 months for design and engineering). Chevron has already completed the design and engineering for their pipeline. This timeframe would not coincide with Amoco's scheduled plant startup of January 1982. This would necessitate temporary handling of Amoco's sulfur production by one of two methods: (1) block sulfur storage at the plant site; or (2) hauling the molten sulfur by conventional 40-short ton tractor-trailers using existing roads.

During the eight-month period that sulfur would have to be stored at the plant site, approximately 5.57 million cubic feet of sulfur would be produced. This is equivalent to 128 acre-feet of sulfur or one solid block of sulfur 10 feet high by 13 acres. In addition, a large amount of energy would be required to remelt the sulfur. Because of these two factors, this temporary method of handling the sulfur has not been studied in detail.

The second temporary method under this alternative would be to haul the molten sulfur by conventional tractor-trailers. The sulfur would be transported east to U.S. Highway 189 along 14.3 miles of the existing Dee Ranch road and then approximately 16 miles north to the proposed loadout site as identified in the Skull Point Alternative (Map I-1). The Dee Ranch road would be upgraded to a 24-foot wide running surface with 5% maximum grades. The routing would be similar to that of the Skull Point Alternative, but would continue to U.S. Highway 189.

Approximately 44 round trips per day (2,670 vehicle miles per day) would be required by 90,000 GVW conventional tractor-trailers. Assuming a 16-hour per day hauling period, on the average one truckload of molten sulfur would have to leave the plant every 21 minutes.

Because of posted weight limits for 5 bridges on U.S. Highway 189 of approximately 74,000 GVW for a conventional 5-axle, 18-wheel tractor-trailer, temporary detours for the loaded trucks to bypass these bridges would be required. These temporary detours would be required in order to negate the GVW limitation of the bridges. Without the detours, it would necessitate doubling the number of round trips to 81 per day. In addition, load adjustments may be required to accommodate seasonal road conditions, these adjustments could result in the traffic volume associated with this alternative to increase two-fold or more. Under severe conditions, this truck traffic could be prohibited.

An All Pipeline Alternative has been identified by the EA core team because of the number of public inquiries regarding such a system. This alternative has not been suggested by either company, but has been included to document the analysis of such a system. Adoption of this alternative would require forcing Amoco to consider this alternative, as Amoco has indicated that it is not a viable alternative for the following reasons:

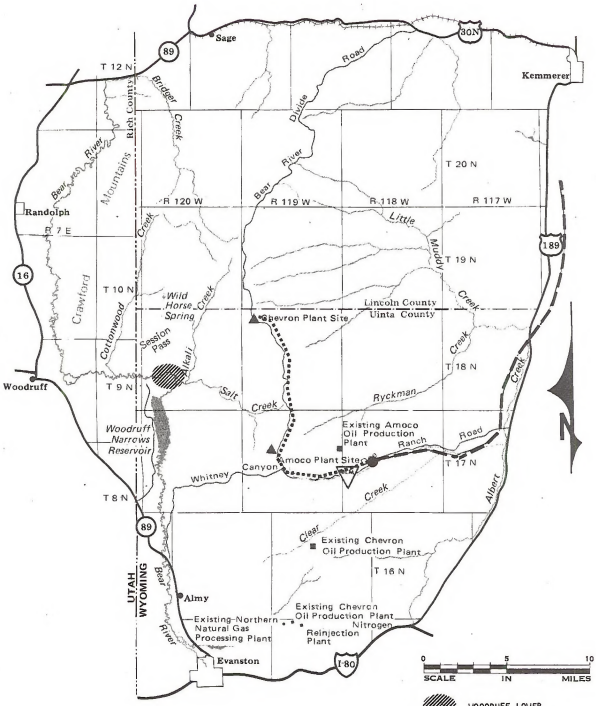
1. A common pipeline from Chevron's plant is not possible because of the nature of the two different sulfur products; Chevron's product is a special degassed material and cannot be physically mixed with Amoco's.

2. Chevron's plant site is at a higher elevation than Amoco's thus preventing gravity flow. High pressure pumping stations, breakout tankage, and maintenance facilities would be required.

3. The transition in elevation between Amoco's and Chevron's plants is not at all smooth. The multiple changes in grade (both up and down) coupled with the high pressure system, present nearly insurmountable system hydraulic problems.

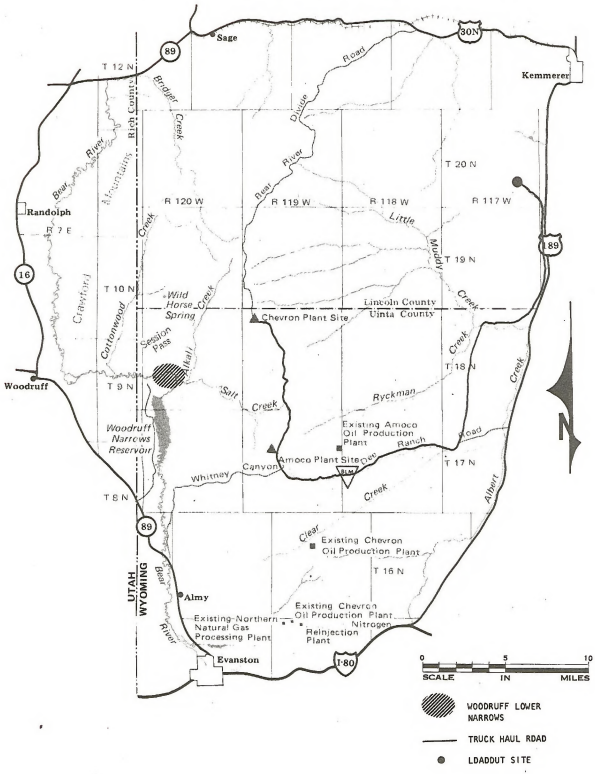
In addition to the above, Amoco's management is also unwilling to install an all pipeline transportation system because it believes that the technological risks involved could create an inoperable and ecologically harmful system. The rationale behind this belief is:

1. It has not been reasonably demonstrated to date that high-temperature pipeline technology has advanced to the stage whereby a molten sulfur pipeline over a few thousand feet in length, using electrical heating, is technically feasible. Molten sulfur must be kept within a narrow temperature range (270° F. to 301° F.). If sufficient insulation and heat is not provided then the sulfur will "freeze" within the pipeline. Complicating matters further, while solidifying the sulfur "shrinks." Thus, under a power failure, pump breakdown, etc., the end result would be a pipeline filled with solid sulfur. During a remelt to reactivate the system, the frozen sulfur (sulfur cooler than 240° F.) would expand, thus tending to burst the pipe and dump sulfur on the ground.



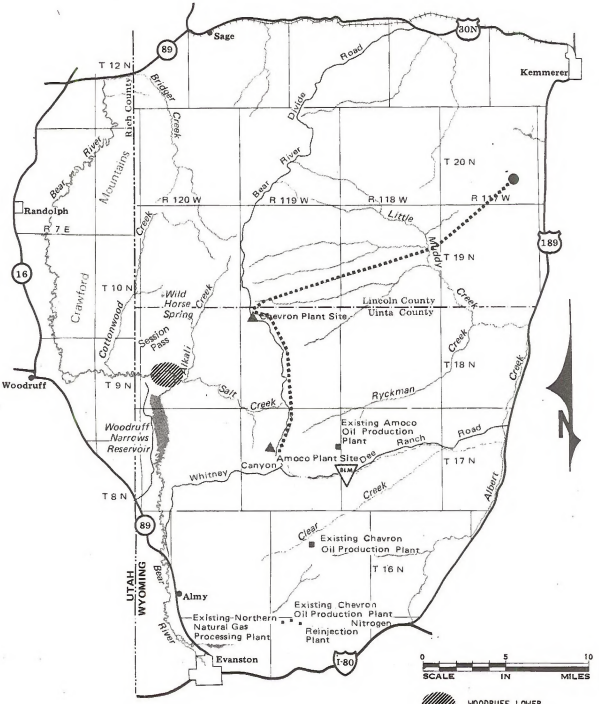
MAP 1-4

DEE RANCH ROAD NO. 1 ALTERNATIVE



MAP 1-5

DEE RANCH ROAD NO. 2 ALTERNATIVE



MAP 1-6

ALL PIPELINE ALTERNATIVE

2. In the event of a malfunction or pipeline rupture, the magnitude of a sulfur spillage is much greater than that involved with a truck.

3. The consequences of sabotage or third party tampering with a molten sulfur pipeline would be devastating in comparison with a truck failure.

No Action Alternative

Under this alternative the BLM would not issue those rights-of-way needed for the construction of sulfur transportation systems for either Chevron or Amoco. The transportation of sulfur from the plants to rail facilities is an integral component of these natural gas processing projects. Since the no action alternative of not allowing the projects has previously been analyzed and found unreasonable, this alternative is not reasonable and has not been considered in detail.

OTHER ALTERNATIVES CONSIDERED

The following alternatives were considered but dropped from detailed analysis because they were either unreasonable or technically infeasible:

1. Modified Skull Point Haul Road Route--The Dee Ranch road would be upgraded all the way to Highway 189 and then parallel the highway on the west side to the indicated loadout site (Map I-7). This alternative was not analyzed in detail because of drainage problems along Albert Creek. Also, should the haul road be built on the east side of the highway, it would be necessary to construct two bridges to cross the highway; the construction costs would be prohibitive.

2. Hill Creek Alternative--This alternative would be the construction of an estimated 40 miles of railroad from the existing Skull Point spur, south to Muddy Creek, then west to Hill Creek and a junction on the Bear River Divide where the railroad would branch to the Amoco and Chevron plants (Map I-8).

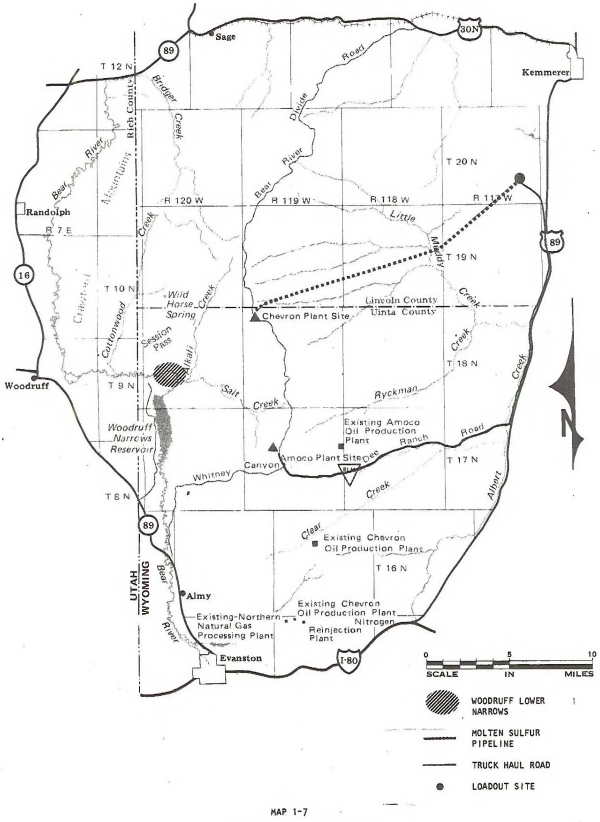
This alternative would be environmentally detrimental and one of the most expensive routes because the grades necessary for railroad operation would require a considerable amount of surface disturbance. Snow would hamper the line's operations during the winter, compromising service reliability, which is essential for molten sulfur transportation.

3. Evanston No. 2 Alternative--This alternative (Map I-9) would consist of a 25-mile truck haul route running southwest from both the Chevron and Amoco plant sites to U.S. Highway 89 and then paralleling the highway south to a common loadout site northwest of Evanston.

This alternative has not been analyzed in detail for the following reasons: (1) Union Pacific Railroad Company is reluctant to accept additional traffic on its heavily used southern east-west route and will not assure timely service which molten sulfur transportation requires; (2) the disturbance of both prime agricultural lands and riparian habitat areas associated with the Bear River through the construction of the road and loadout facilities; and (3) the contribution towards further congestion of the area surrounding the expanding community of Evanston.

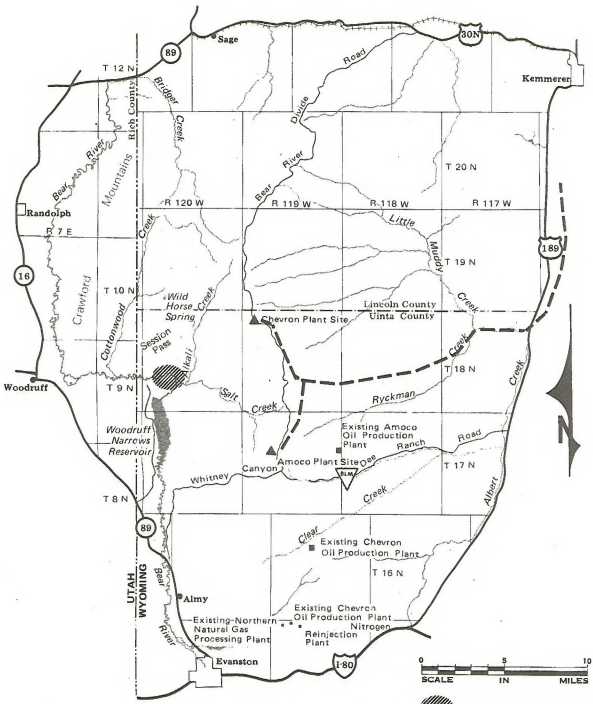
SUMMARY OF ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

Table I-2 summarizes the impacts of the sulfur transportation alternatives and the environmental components affected. For analysis purposes, short term is considered to be the time necessary to successfully reclaim areas disturbed during construction but not occupied by permanent facilities (1981-1995). Long term is considered to be the life of the project and post reclamation efforts (1995-2030).



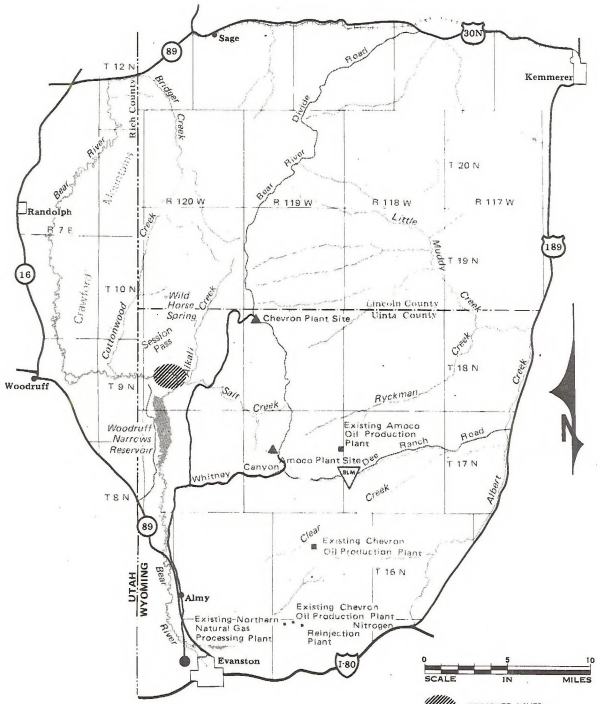
MAP 1-7

MODIFIED SKULL POINT ALTERNATIVE



MAP 1-8

HILL CREEK ALTERNATIVE



MAP 1-9

EVANSTON NO. 2 ALTERNATIVE

Table I-2

ANALYSIS SUMMARY

Environmental Component	Alternatives											
	Skull Point		Muddy Creek No. 1		Muddy Creek No. 2		Dee Ranch Road No. 1		Dee Ranch Road No. 2		All Pipeline	
	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
AIR QUALITY												
Fugitive Dust (lbs./day)	-	2,870	-	1,654	-	1,654	-	0	-	10,520	10,020	0
TOPOGRAPHY												
Degree Ranking of Impact (1=Highest, 6=Lowest)	-	5	-	2	-	3	-	1	-	4	-	6
MINERAL RESOURCES												
Aggregate Need (Cubic Yards)	-	264,500	-	263,000	-	230,700	-	145,000	-	309,700	-	67,300
SOILS, WATER, VEGETATION												
Acres Disturbed[1/]	791	276	931	497	849	468	843	508	671	305	673	259
100 year Floodplain Acres Disturbed	63	51	259	101	286	202	202	164	63	51	61	51
Riparian Habitat Acres Disturbed	27	3	184	153	100	78	247	223	24	16	22	9
TERRESTRIAL WILDLIFE												
Big Game AUMs Lost	11	4	13	7	12	7	12	7	10	4	10	4
Deer Road Kill Loss	3	3	3	3	3	3	8	8	11	11	7	0
Acres Big Game Crucial Habitat Lost	16	3	64	35	64	35	230	154	16	3	31	3
Number Sage Grouse Complexes Disturbed	6	6	5	5	5	5	5	5	5	5	5	1
Acres Sage Grouse Complexes Disturbed	132	32	110	28	110	28	166	111	110	28	33	10
Number of Raptor Nest Areas Affected	3	3	10	10	10	10	0	0	3	3	2	0
LIVESTOCK GRAZING												
AUMs Lost	104	36	122	65	111	60	110	67	87	40	88	33
CULTURAL RESOURCES												
Visual Effect on Oregon Trail Route	M	L	H	M	H	M	M	L	M	L	L	L
ENERGY REQUIREMENTS												
BTUs per Day (Thousands)	-	164,079	-	128,912	-	134,795	-	158,934	-	275,118	-	132,211
SOCIOECONOMICS												
Population Increases	976	166	931	166	966	166	1,025	118	371	215	1,433	118
Housing Units Required	33	56	33	56	33	56	24	40	44	72	37	40
Additional School Enrollment	41	62	39	62	39	62	30	44	50	81	47	44
CONSTRUCTION TIMING APPLICABILITY	Yes-Both		No-Both		No-Both		No-Both		Yes-Both		Yes-Chevron No-Amoco	

H=High impact.
M=Moderate impact.
L=Low impact.

CHAPTER II
AFFECTED ENVIRONMENT

The following discussion contains new and revised information supplemental to that found in the Whitney Canyon and Carter Creek Natural Gas Projects EA, as it relates to sulfur transportation. The information contained in both the Whitney Canyon-Carter Creek EA and this supplement provides the bases for analyzing the impacts of the alternatives being considered on the existing physical, biological, cultural, and human components of the environment.

GEOLOGY

Geologic Hazards

The sulfur transportation routes do not pass through landslide prone areas. Although earthquake activity is relatively frequent in the area, historic data indicates a low probability of earthquakes exceeding an intensity of VII on the Modified Mercalli Scale (see Glossary). Therefore, the probability of earthquake damage in this area is considered to be low, but the potential hazard still exists.

Mineral Resources

Aggregate

There are adequate sources of aggregate material on private and public lands within the area. The Hams Fork formation, which is associated with the backside of the coal bearing ridge, is a source of aggregate. Another possible source is the Oyster Ridge area which is located east of the assessment area. The aggregate is suitable for screening for use as a subbase, and can be crushed for use as gravel. A screening operation currently operates in section 28, T. 20 N., R. 117 W.

Coal

Several alternative routes would pass through existing coal lease areas. Map II-1 indicates those areas that have been leased for coal strip mining and areas that are currently being mined. This map also indicates the Known Recoverable Coal Resources Area (KRCRA) (see Glossary). All existing and future coal mines are anticipated to employ surface mining techniques. There are two coal leases within the assessment area that may be affected: FMC's Skull Point Mine and the proposed South Haystack mine. At present, FMC Corporation does not have any plans to mine in the area affected by the proposed pipeline (Skull Point Alternative), and does not anticipate beginning operations in that area for at least 10-15 years (pers. comm., Rangitsch 1980). Chevron and FMC have verbally agreed that should the pipeline interfere with future mine operations, Chevron would move its pipeline.

The South Haystack coal lease area would be crossed in its extreme northern portion by the proposed haul route. However, since the proposed haul road right-of-way affecting the coal lease is adjacent to Clear Creek drainage area, it is doubtful mining operations would be conducted here.

VEGETATION

The predominant vegetation type is sagebrush-grass, which covers approximately 78% of the assessment area. Other vegetation types in the area include aspen, 7%; juniper, 7%; saltbush-winterfat, 5%; mountain shrub, 2%; and forest, 1%.

Threatened and Endangered Plants

Three species of plants which have been proposed for inclusion as threatened plants on the Federal Register of threatened and endangered species may be found in the assessment area:

1. Physaria condensata Rollins (tufted twinpod) has been collected since 1938 near Fort Bridger, Wyoming. In 1975 (Federal Register 40:27887 July 1, 1975) it was proposed as threatened and remains a candidate for final listing. Potential habitat is considered to be southwestern Wyoming, northeastern Utah, and southeastern Idaho on shaly slopes and ridges between 6,500 and 7,000 feet in elevation.

2. Stanleya pinnata var. gibberosa Rollins (dissected prince's plume) was first collected in 1938 near Fort Bridger and Carter, Wyoming. Its potential habitat is considered to be limy shale slopes in southwestern Wyoming, northeastern Utah, and southeastern Idaho. It is usually found in association with Physaria condensata Rollins.

3. Haplopappus contractus Hall is found in scattered locations in Lincoln and Uinta Counties. It was first collected in 1873 at Fort Bridger. It's potential habitat is considered to be moist saline soils in basins at an elevation of 6,600 feet.

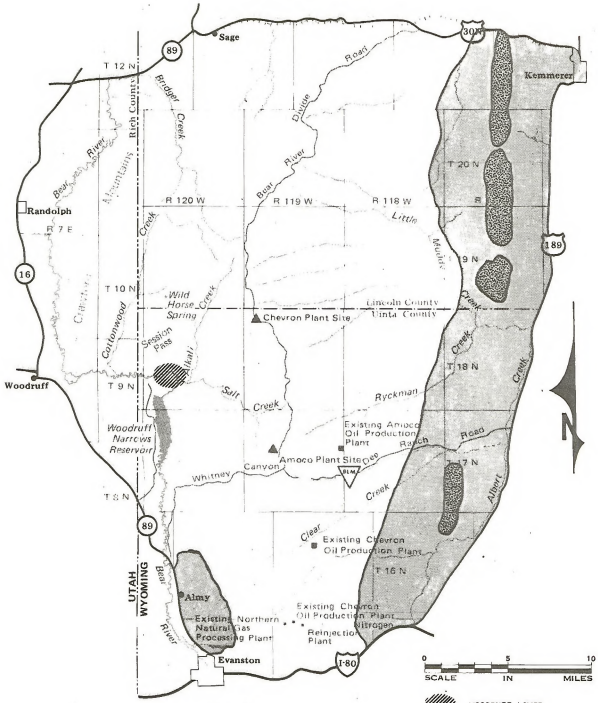
TERRESTRIAL WILDLIFE

Since the preparation of the Whitney Canyon-Carter Creek EA (May 1980), wildlife habitat data from the area has been updated by the Wyoming Game and Fish Department and the BLM. The following is based on this new data, and it reflects the best information available.

Big Game

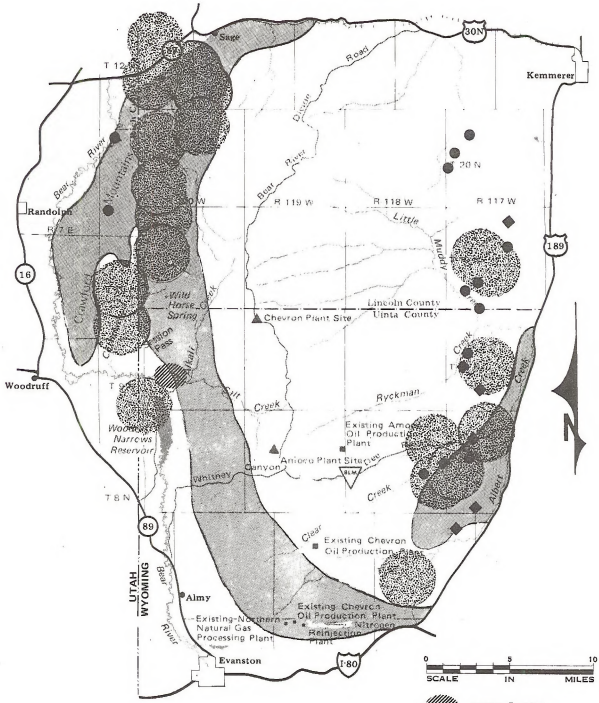
Map II-2 illustrates that habitat which is recognized as being big game crucial wintering habitat and is approximately 171,000 acres. Although the period of use depends upon the severity of the winter and the condition of the animals and vegetation, the crucial period each year is normally October 15 through May 15.

The Wyoming Game and Fish Department (pers. comm., Roy 1981) reports that 10,000 to 15,000 deer, 600 antelope, and more than 100 elk winter in the entire assessment area. An estimated 500 deer winter along the east slope of the Bear River Divide, and the elk winter on the west side of the Divide. The antelope winter habitat is located east of the Divide along Highway 189. Big game year-long use of the area consists of approximately 9,000 deer and 100 elk.



MAP 11-1

COAL LEASE AND MINING AREAS



MAP 11-2

IMPORTANT WILDLIFE AREAS

Sage Grouse Strutting/Nesting Complexes

Map II-2 depicts presently-known strutting and nesting complexes, including eight east of the Bear River Divide as identified in the BLM sage grouse survey during 1980. These complexes are normally active from March 1 through June 15 of each year and approximately 80% of the nesting activity occurs here. Within each complex is the breeding center or lek (see Glossary), which has a one-quarter mile in radius buffer zone. The area within a 2 mile radius of the lek is used extensively for nesting. Eight strutting and nesting areas are located east of the Bear River Divide, or in that portion of the assessment area that would be affected by the alternatives considered in this supplement. Two of the leks are located adjacent to the Dee Ranch road (Map II-2). Approximately 47,930 acres of strutting/nesting complexes are within that area, and these complexes support approximately 1,350 birds.

Raptors

Map II-2 depicts presently-known golden eagle and prairie falcon nesting sites. BLM wildlife biologists have identified and recommended buffer zones surrounding these nests. Information concerning these buffer zones is available at the BLM Rock Springs District Office. The nesting sites normally are active from March 15 to July 1. The nesting sites were identified by Wyoming Game and Fish Department and BLM wildlife biologists.

Threatened and Endangered Species

The bald eagle (Haliaeetus leucocephalus) is the only Federally listed species known to occur in the area. There are no records of nesting or wintering bald eagles along any of the sulfur transportation routes under consideration in this supplement. The peregrine falcon (Falco peregrinus) and the black-footed ferret (Mustela nigripes) may also occur in the area.

There are no confirmed sitings of the peregrine falcon within the assessment area, although it is speculated they may be a rare migrant to southwestern Wyoming. Endangered species studies have been conducted by the U.S. Fish and Wildlife Service (FWS) in southwestern Wyoming to determine the distribution and status of nesting and wintering peregrine falcons. FWS has determined there is good potential for peregrines to both winter and nest in or near Wyoming. No peregrine falcon nests have been found within the assessment area.

White-tailed prairie dog towns occur throughout the assessment area at the lower elevations. Those towns may indicate possible black-footed ferret habitat. Two black-footed ferret surveys were conducted by the Fish and Wildlife Service (Martin and Schroeder 1978 and 1980) on a total of 28 prairie dog colonies in and adjacent to the proposed South Haystack coal mine site, located 14 miles east of the Amoco plant site (approximately T. 17 N., R. 117 W.). One ferret skull was found in 1978 and two skulls were found in 1979--the second skull was found in an 807-acre white-tailed prairie dog colony and the third in a 1,024-acre colony less than a quarter-mile from Highway 189.

In November 1980, a ferret survey was conducted by Environmental Research and Technology, Inc. in behalf of Amoco Production Company along the proposed sulfur haul road. The final survey report, a copy of which is available for public review in the Rock Springs District Office, noted that no definitive sign of black-footed ferrets was found. Another contemporary study, conducted by Tim Clark (Biota Research and Consulting) for the Wyoming State Highway Department, produced no evidence of ferret presence in the area along U.S. Highway 189 between Kemmerer and Lazeart Junction (Interstate 80). Portions of these studies overlap and both studies indicate that the possibility of black-footed ferret presence in the vicinity of the proposed haul road, is remote.

LIVESTOCK GRAZING

The dominant use of the assessment area has historically been agricultural. The land provides forage for cattle, sheep, and wildlife. The northeast quadrant of the Cumberland-Uinta Allotment and the western portion of the Albert Creek Allotment, located between the Dee Ranch and Muddy Creek roads, are important lambing areas for four livestock operators in the area (Map II-2, page 33 of the original EA). Lambing corrals and grounds for 1,000 head of sheep are located in section 25, T. 20 N., R. 119 W.; shearing activities also are conducted in that area. Lambing and shearing facilities for 2,600 head of sheep are located near Dee Ranch road and Highway 189 in the Albert Creek Allotment portion of the project area.

WILD HORSES

The Cumberland Wild Horse Unit (Herd Unit No. 15) contains 153 wild horses, according to the 1980 Rock Springs District inventory results. BLM's Pioneer Trails Management Framework plan has identified these horses for removal, pending availability of funds.

WILDERNESS VALUES

There are no Wilderness Areas, Wilderness Inventory Units, or proposed Wilderness Study Areas within the assessment area.

CULTURAL RESOURCES

Chevron and Amoco have retained BLM approved archeologists and historians to conduct both an historical resource inventory and a Class III cultural resource inventory. These inventories will be completed prior to construction on all lands affected by the project. The inventories will also include a buffer zone to identify sites which may be affected by secondary impacts (increased access to the area may cause more illegal collecting activities and vandalism). Any sites identified during this inventory will be evaluated and the State Historic Preservation Officer will be consulted pursuant to 36 CFR 800.4.

Prehistoric

No intensive cultural inventories have been completed for any of the sulfur transportation alternatives. However, on the basis of previous inventories conducted in the Overthrust Belt (see Glossary), it is known that section 18, T. 17 N., R. 117 W., and sections 13, 14, and 15, T. 17 N., R. 118 W., are areas of high site density.

Historic

The Oregon Trail passes through the assessment area. The trail's origin and significance to the history of the west is discussed in detail in BLM's Kemmerer Resource Area Oil and Gas Leasing EAR-Chapter II, Historical and in the Whitney Canyon-Carter Creek EA-Chapter II, Historic. It has been designated as a National Historic Trail. Map II-3 indicates those portions of the Oregon Trail route that contain well-preserved segments of the trail.

It was determined in the historical resource inventory that the pipeline route would have no affect on any trail segments eligible for nomination to the National Register of Historic Places.

Map II-3 also indicates the location of the Cumberland Townsite which is eligible for inclusion in the National Register of Historic Places. This town and related mining activities began around 1900, and formally ended June 21, 1930, when the coal seam played out. Most of the miners and their families relocated. The houses at Cumberland were moved to Kemmerer and Diamondville.

The Cumberland Townsite contains four components: Cumberland South, Cumberland No. 1, Cumberland No. 2, and Halfway, all of which are in ruins. Stone foundations, rubble piles, and exploited trash dumps characterize the townsite areas. Massive concrete foundations, spoil piles, and abandoned railroad facilities are associated with the various mine locations. The remains of pipelines, reservoirs, roads, and bridges are also present, as well as a well-kept cemetary.

VISUAL RESOURCES

The area is characterized by rolling, sagebrush-covered hills and moderately steep, sagebrush- and mountain shrub-covered hills. The most stringent Visual Resource Management class affected by the alternatives considered in this supplement is Class III.

LAND USES

The dominant use of the assessment area has historically been agricultural in the form of livestock grazing. Some private croplands (livestock pasture) exist along the Little Muddy. Recently extensive industrial development has taken place. Several industrial facilities exist in the northeastern portion of the assessment area near Kemmerer: (1) Kemmerer Coal Company operates two coal mines; (2) Utah Power and Light Company operates a coal-fired electric generating plant; and (3) FMC operates a coking plant and coal mine. BLM has identified this area as an important industrial area in the Pioneer Trails Management Framework Plan. Continued industrial development is anticipated in this area. Also, Stauffer Chemical Company operates a phosphate mine north and slighhly west of the assessment area, near Sage Junction.

TRANSPORTATION NETWORK

U.S. Highway 189 runs north from I-80 to Kemmerer, forming the eastern boundary of the assessment area. The Wyoming State Highway Department (pers. comm., Hayes 1981) reported an average of 630 vehicles per day used the highway in 1979 from the I-80 interchange to the Uinta-Lincoln county line and 990 daily from Elkol to the junction of 189 and U.S. 30 north. Several of the alternative routes would parallel Highway 189 in places. The Wyoming State Highway Department plans to redesign and rebuild this highway in four segments beginning in 1981.

SOCIOECONOMIC CONDITIONS

Population

Table II-1 shows the population estimates for Lincoln and Uinta counties for 1970 and 1980, and the percentage change in population for the 10-year period. Lincoln County realized a 41% population increase from 8,640 residents in 1970 to 12,177 in 1980. Diamondville showed the highest 10-year population percentage increase of 108% which accounts for 523 of the county's 3,537 new residents. The town of Kemmerer received 979 new residents, an increase of 43% in 10 years. Forty-two percent of Lincoln County's population increase was consolidated in the towns of Diamondville and Kemmerer. Uinta County realized a higher growth rate of 83% from 1970 to 1980, with the primary growth areas being Evanston and Lyman.

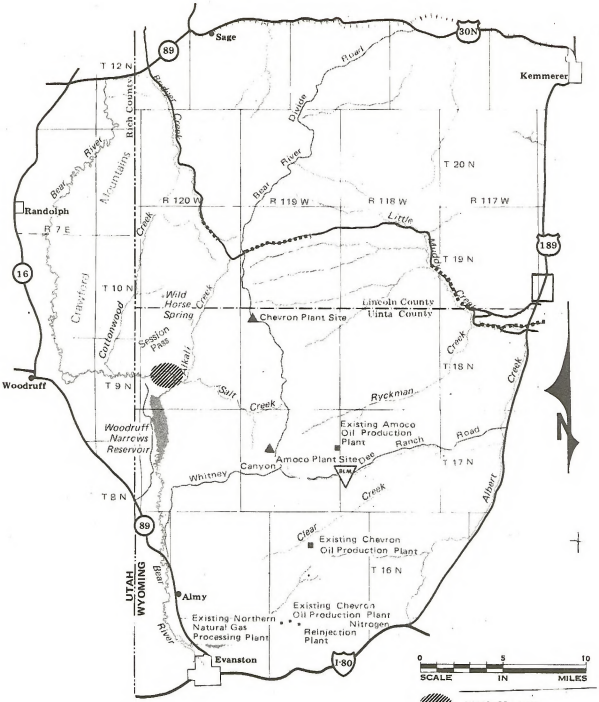
Income and Employment

Lincoln County has shown a dramatic increase of 124% in labor and proprietors income from 1972 to 1978 (Table II-2). The mining sector realized the largest increase in labor and proprietors income of 602% from $3,585,000 in 1972 to $25,158,000 in 1978. Table II-3 shows employment by industrial sector from 1972 to 1978. The mining sector realized the largest increase in employment of 222% from 326 employees in 1972 to 1,051 employees in 1978. The mining industry controlled 21% of the annual work force and paid 38% of labor and proprietors income in Lincoln County in 1978. Industrial sectors related to mining and energy related exploration have also realized dramatic increases in income and employment from 1972 to 1978. Farm proprietors showed the smallest increase of only 0.3%, while nonfarm proprietors increased 108% in number from 2,740 in 1972 to 5,690 in 1978.

Uinta and Lincoln counties showed similar trends in income and employment. Labor and proprietors income and employment for Uinta County are shown in Tables II-4 and II-5 for 1972 to 1978. The mining sector realized the largest increase in income and employment with related industrial sectors increasing by a somewhat lesser degree. The agricultural sector showed a decrease in labor and proprietors incomes, employment, and number of farm proprietors.

Housing, Schools, Private, and Public Services

Increases in population associated with the development of new industry or the expansion of existing industry has resulted and will continue to result in increasing pressure on housing, schools, private, and public services of existing cities and towns. The original EA includes a summary (Tables II-3 and II-4, pages 38 and 40) of the present type and number of housing units available in the Evanston, Kemmerer, and Diamondville areas, and the number of overcrowded housing units that already exist. High school enrollments are typical in the Kemmerer and Diamondville areas as in Uinta County schools (Table II-10, page 44 of the original EA). Increasing population numbers have put pressure on



MAP 11-3

AFFECTED CULTURAL RESOURCES

Table II-1

CHANGES IN POPULATION IN LINCOLN AND UINTA COUNTIES
FOR 1970 and 1980[1/]

	1970	1980[2/]	Percent Change 1970 to 1980
Uinta County	7,100	13,021	83
Evanston	4,462	6,420	44
Lyman	643	2,293	257
Mountain View	N/A	629	N/A
Lincoln County	8,640	12,177	41
Kemmerer	2,292	3,271	43
Diamondville	485	1,008	108
Cokeville	440	513	17

N/A=Population estimates are not available or percent change could not be calculated.

1/1980 Census of Population and Housing, Wyoming.

2/Preliminary Estimate--1980 Census of Population and Housing, Wyoming.

Table II-2

LABOR AND PROPRIETORS INCOME AND FARM AND NONFARM PROPRIETORS INCOME FOR LINCOLN COUNTY[1]

Industrial Sector	1972	1973	1974	1975	1976	1977	1978	Percent Change 1972-1978
Labor and Proprietors Income[2]								
Agriculture	4,859	7,243	3,330	2,376	2,415	1,085	5,310	9
Mining	3,585	4,586	7,530	8,601	17,128	20,974	25,158	602
Construction	4,250	5,447	11,378	9,140	5,719	9,706	5,252	24
Manufacturing	1,924	2,077	2,317	2,315	3,131	3,739	4,124	114
Transportation	3,780	4,160	5,327	6,121	6,893	7,986	0	[3]
Wholesale Trade	1,114	1,128	1,867	2,108	2,153	1,443	0	[3]
Retail Trade	2,339	2,743	3,195	3,817	4,183	4,598	4,770	99
Finance	785	840	913	992	1,408	1,799	2,161	175
Service	1,774	1,376	1,513	1,611	1,942	2,399	2,809	58
Public Administration	5,142	4,834	4,561	4,807	5,266	5,472	6,189	20
Total	29,552	34,434	41,931	41,888	50,238	59,201	66,080	124
Farm and Nonfarm Proprietors Income[2]								
Farm Proprietors Income	3,483	5,889	1,970	911	905	-396	3,494	3
Nonfarm Proprietors Income	2,740	2,857	3,575	3,796	4,628	5,149	5,690	108

Note: Entry of "0" is used to avoid disclosure of confidential information.

[1] Wyoming Income Report, prepared by Division of Research and Statistics, Department of Administration and Fiscal Control, State of Wyoming, September 1980.

[2] Numbers reported in thousands of dollars.

[3] Percent change cannot be calculated on a 7-year basis.

Table II-3

EMPLOYMENT BY MAJOR INDUSTRIAL SECTOR FOR LINCOLN COUNTY[1]

Industrial Sector	1972	1973	1974	1975	1976	1977	1978	Percent Change 1972-1978
Agriculture	244	220	200	190	211	188	185	-24
Mining	326	418	524	559	891	1,002	1,051	222
Construction	380	423	733	607	322	467	272	-28
Manufacturing	264	249	268	251	292	310	361	37
Transportation	313	297	344	371	390	429	0	[2]
Wholesale Trade	118	122	136	166	163	121	0	[2]
Retail Trade	397	426	469	496	589	590	572	44
Finance	65	63	63	63	82	98	121	86
Service	310	283	265	255	283	321	350	13
Public Administration	833	765	721	667	658	629	642	-23
Proprietors	889	889	925	960	947	976	1,008	13
Total	4,146	4,161	4,657	4,592	4,828	5,131	5,119	23

Note: To avoid disclosure of confidential information, either a zero "0" entry or an incomplete figure has been entered. Data is included in the column totals.

[1] Wyoming Employment Report, Division of Research and Statistics, Department of Administration and Fiscal Control, State of Wyoming, September 1980.

[2] Percent change cannot be calculated on a 7-year basis.

Table II-4

LABOR AND PROPRIETORS INCOME AND FARM AND NONFARM PROPRIETORS INCOME FOR UINTA COUNTY[1]

Labor and Proprietors Income[2]

Industrial Sector	1972	1973	1974	1975	1976	1977	1978	Percent Change 1972-1978
Agriculture	2,809	2,891	1,397	633	-295	455	265	-91
Mining	0	1,012	1,492	1,488	1,920	5,448	0	[3]
Construction	1,201	947	2,010	3,108	1,434	2,077	2,377	98
Manufacturing	671	1,067	1,225	1,258	1,379	1,857	1,680	150
Transportation	4,743	5,491	6,289	6,521	7,576	9,173	10,534	122
Wholesale Trade	0	306	582	606	532	717	972	[3]
Retail Trade	2,773	3,212	3,597	4,508	5,137	5,781	6,602	138
Finance	389	450	520	556	697	854	1,016	161
Service	1,304	1,283	1,578	1,887	2,192	2,642	0	[3]
Public Administration	6,907	7,378	7,953	9,139	10,511	11,812	13,228	92
Total	21,590	24,081	26,686	29,704	31,083	40,816	49,884	131

Farm and Nonfarm Proprietors Income[2]

Farm Proprietors Income	2,223	2,266	735	-144	-1,094	-343	-570	-126
Nonfarm Proprietors Income	1,483	1,567	1,818	2,239	2,606	2,767	3,018	104

Note: To avoid disclosure of confidential information, either a zero "0" entry or an incomplete figure has been entered. Data is included in the column totals.

[1] Wyoming Income Report, prepared by Division of Research and Statistics, Department of Administration and Fiscal Control, State of Wyoming, September 1980.

[2] Numbers reported in thousands of dollars.

[3] Percent change cannot be calculated on a 7 year basis.

Table II-5

EMPLOYMENT BY MAJOR INDUSTRY SECTOR FOR UINTA COUNTY

Industrial Sector	1972	1973	1974	1975	1976	1977	1978	Percent Change 1972-1978
Agriculture	111	103	96	102	112	105	82	-26
Mining	0	85	125	117	116	314	0	2/
Construction	111	91	164	205	97	127	137	23
Manufacturing	82	129	145	141	146	165	145	77
Transportation	392	401	443	428	459	530	568	45
Wholesale Trade	0	41	67	71	56	67	75	2/
Retail Trade	577	615	634	718	781	826	867	50
Finance	48	51	56	60	66	78	80	67
Service	281	256	280	267	279	263	0	2/
Public Administration	1,189	1,167	1,154	1,177	1,204	1,246	1,286	8
Proprietors	569	584	572	607	593	620	649	14
Total	3,415	3,530	3,743	3,893	3,909	4,341	4,805	41

Note: To avoid disclosure of confidential information, either a zero "0" entry or an incomplete figure has been entered. Data is included in the column totals.

1/Wyoming Employment Report, Division of Research and Statistics, Department of Administration and Fiscal Control, State of Wyoming, September 1980.

2/Percent change cannot be calculated on a 7-year basis.

existing public services and facilities such as police protection and fire prevention. Health services are over-taxed (Table II-11, page 45 of the original EA).

CHAPTER III
ENVIRONMENTAL CONSEQUENCES

ASSUMPTIONS AND ANALYSIS GUIDELINES

For the purpose of analysis it is assumed that the beneficial and adverse impacts discussed could occur on private and state land as well as public lands. Mitigating measures may be identified to the State or private landowners, but no mandatory requirements can be made by BLM. For purposes of determining unavoidable adverse impacts, it is assumed that those mitigating measures identified would be adopted and applied to all lands concerned.

IMPACTS OF THE ALTERNATIVES

The following discussion addresses those impacts resulting from the new alternatives being considered before application of mitigation measures identified in the mitigation section of this supplement. Table III-1 summarizes the total acres disturbed by the various facilities per alternative.

Climate

Since the outside temperature of the molten sulfur pipeline would be 4 to 5° F. above ambient, negligible to no effect is anticipated on the micro climate by any of the alternatives.

Air Quality

Vehicles transporting sulfur along roads in the area would cause fugitive dust in the atmosphere, thereby reducing the air quality. Fugitive dust was calculated using the Environmental Protection Agency's equation for suspended particulates (pers. comm., Collins 1981). The fugitive dust impacts that would be associated with each alternative are summarized in Table III-2. The All Pipeline Alternative impact would result from the Amoco short-term haul road after appropriate dust abatement. The use of that haul road would cause 25,020 pounds per day of fugitive dust, prior to application of dust abatement measures (chip-and-seal, watering, chemical, etc.).

The greatest impact to air quality would be in the immediate vicinity of the road along which the vehicles would travel. Winds could cause the dust to be spread over a larger portion of the area. Because of the variability of wind speeds and directions, the impacted area cannot be quantified.

Vehicle exhaust emissions resulting from any alternative would cause minimal impacts to the area's air quality (pers. comm., Collins 1981).

Topography

Topographic changes as a result of any alternative considered in this supplement would be minimal. Storage/loadout facilities' cut and fill requirements would disturb an acreage similar to those listed on Table I-1 of the original EA (p. 6) and some cut and fill would be needed for various haul road routes and the railroad spur.

Based on an estimate of the amount of topographic alterations required for each alternative, the following is the core team's analysis and relative impact ranking with the alternative causing the greatest impact listed first: (1) Dee Ranch Road No. 1; (2) Muddy Creek No. 1; (3) Muddy Creek No. 2; (4) Dee Ranch Road No. 2; (5) Skull Point; and (6) All Pipeline.

This ranking is based on a subjective analysis that considered such factors as type and length of linear facility, topographic characteristics along facility alignment, loadout facility location(s), topographic features at those locations, etc. Since specific engineering designs are not available for the alternatives, only a subjective analysis was possible.

Geology

Geologic Hazards

As with any transportation system, there are incalculable risks associated with damage that could result from an earthquake. The amount of molten sulfur spillage may be the greatest with a pipeline system, as opposed to the other systems analyzed in terms of resultant earthquake damage. The worst case break of the pipeline in the Skull Point or All Pipeline alternatives could result in the spillage of 8,000 cubic feet of molten sulfur. All other alternatives would probably spill less. For comparison, a 85-short-ton haul truck carries approximately 1,500 cubic feet of molten sulfur and a 100-ton rail tank car carries approximately 1,790 cubic feet of molten sulfur.

Impacts resulting from a sulfur spill are not anticipated to be great. Molten sulfur would solidify after being spilled, which could then be loaded onto trucks and transported to the loadout facility for shipment to a suitable market.

The probability of damage to the facilities due to earthquakes is low; the production and loading sites are not landslide prone.

Mineral Resources

The estimated aggregate necessary for construction of the facilities proposed under each alternative is listed in Table III-3.

Soils and Water Resources

Table III-4 indicates those acres disturbed by each alternative that would be within the 100-year floodplain and riparian habitat. Construction would increase soil erosion and sediment yield within these areas. Accelerated erosion would occur as a result

Table III-1

TOTAL ACRES DISTURBED BY FACILITIES PER ALTERNATIVE

Alternatives	Skull Point		Muddy Creek No. 1		Muddy Creek No. 2		Dee Ranch Road No. 1		Dee Ranch Road No. 2		All Pipeline	
	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Molten Sulfur Pipeline	181	16	111	2	156	2	160	2	N/A	N/A	276	18
Railroad	21	14	365	243	259	173	451	301	21	14	21	14
Haul Road[1]	336	77	209	88	209	88	N/A	N/A	418	86	143	22
Loadout Facilities	246	164	246	164	225	200	225	200	225	200	225	200
Access Road to Loadout Facility	7	5	N/A	N/A	N/A	N/A	7	5	7	5	7	5
Total Acres	791	276	931	497	849	463	843	508	671	305	673	259

N/A=Not Applicable.

[1] Acreage figure under short term includes 20 acres for material site, crusher, and batch plant.

Table III-2

ESTIMATED AVERAGE DAILY FUGITIVE DUST IN POUNDS PER DAY BY ALTERNATIVE

Alternative	Average Fugitive Dust[1/]
Skull Point	2,870
Muddy Creek No. 1	1,654
Muddy Creek No. 2	1,654
Dee Ranch Road No. 1	N/A
Dee Ranch Road No. 2	10,520
All Pipeline	10,020-14,310[2/]

1/Based on equation provided by Chuck Collins, Wyoming Department of Environmental Quality Air Quality Specialist. The equation used is:

$$E=2.5\ (0.81s \times \frac{S}{30} \times \frac{365-W}{365} \times 0.62)$$

Where:
E=Pounds of fugitive dust per vehicle-mile.
2.5=Factor to correct to five-axle, 18-wheel vehicle (equation was for four-wheel vehicle).
s=Percent silt content (12% average).
S=Vehicle speed in miles per hour (if vehicles' speed is less than 30 mph, then square $\frac{S}{30}$).
W=Days in which 0.01 inches or more of precipitation is received (90-day average for Wyoming).
This equation is from EPA and it is for suspended particulate. The particulate would behave like a gas; therefore, no settling would occur.

2/These figures represent short-term potential range of fugitive dust following the application of various methods of dust abatement on the 14.3 miles of the unpaved Dee Ranch Road. This range is for chip-and-seal (70% effective in dust abatement) to watering the road (50% effective).

Table III-3

ESTIMATED QUANTITIES OF AGGREGATE IN
CUBIC YARDS NEEDED BY ALTERNATIVE

	Facility			
	Haul Road	Railroad[1/]	Loadouts	Total
Skull Point	230,000	5,700	28,800	264,500
Muddy Creek No. 1	134,200	100,000	28,800	263,000
Muddy Creek No. 2	134,200	76,500	20,000	230,700
Dee Ranch No. 1	N/A	125,000	20,000	145,000
Dee Ranch No. 2	276,000	5,700	28,000	309,700
All Pipeline	33,600	5,700	28,000	67,300

[1/] Estimated at 2,500 cubic yards/mile each of ballast and sub ballast. Approximately one-half of estimate would be railed in from sources outside of area.

Table III-4

ACRES OF FLOODPLAIN AND RIPARIAN HABITAT
DISTURBED BY CONSTRUCTION UNDER EACH ALTERNATIVE

	100-Year Floodplain		Riparian Habitat	
	Short Term	Long Term	Short Term	Long Term
Skull Point	63	51	27	3
Muddy Creek No. 1	259	101	184	153
Muddy Creek No. 2	286	202	100	78
Dee Ranch Road No. 1	202	164	247	223
Dee Ranch Road No. 2	63	51	24	16
All Pipeline	61	51	22	9

of the removal of protective vegetation from those acres disturbed by construction (Table III-1). The increase in sediment yield cannot be quantified due to lack of data.

The haul road route for the Skull Point, Muddy Creek No. 1 and 2, and Dee Ranch Road No. 2 would require rechanneling approximately 640 feet of Shurtleff Creek in section 18, T. 17 N., R. 117 W. The channel would be shortened to 300 feet to allow the haul road to skirt a 125-foot high ridge.

Rechanneling Shurtleff Creek without proper mitigation would result in a change in stream gradient and increased velocity. This would result in channel erosion downstream and eventual headcutting upstream.

There are valid water rights from Shurtleff Creek and most of the other streams in the assessment area. Any channel modification would have to be accomplished without interference with these water rights.

Vegetation

Vegetation would be lost on those areas disturbed by the construction of various facilities as proposed in each alternative (Table III-1). More than 90% of the vegetation losses would be sagebrush-grass, the predominant type in the area, with some losses of mountain shrub and saltbush-winterfat vegetation types. However, vegetation lost due to the construction of these facilities represents less than 0.2% of the vegetation in the assessment area.

Threatened and Endangered Plants

The three species of proposed threatened and endangered plants that may exist within the assessment area could be encountered by any of the alternatives being considered.

It has been determined in consultation with the Fish and Wildlife Service that protective measures only need to be developed for "known" habitats for two of the three threatened and endangered plant species (Physaria condensata Rollins and Stanleya pinnata var. gibberosa Rollins). None of the rights-of-way routes will intersect "known" habitats of these two species, therefore, no inventories will be required. The third species (Haplopappus corractus) has been found to be in greater abundance than previously thought, therefore, no protective measures are necessary.

Terrestrial Wildlife

Big Game

All of the alternatives would pass through big game crucial wintering range. Table III-5 indicates the total acres of habitat disturbed by construction activities for each alternative. These losses represent less than 0.1% of the crucial winter habitat in the assessment area and approximately 1% of the habitat in the area affected by the transportation alternatives. This construction activity would cause displacement of wintering deer and/or antelope east of the Bear River Divide, which would cause unnecessary expenditures of their energy and their use of less desirable portions of the range (pers. comm., Roy 1980). Habitat loss would be accompanied by a loss of forage available to big game as shown in Table III-5. These direct losses do not include incalculable losses due to unsuitability of the area for grazing because of human activity (trucks disturbing animals along road, etc.). Animals weakened by such conditions would be less likely to survive severe winter conditions than those in the suitable habitat; however, actual mortality due to these projects cannot be quantified because of insufficient data as well as variables such as severity of the winter, how far the animals would travel, range condition, etc.

Losses also would occur as the result of human activity associated with operation and maintenance. The number of road-killed animals would probably increase in the area. Estimated deer losses per year along the haul route due to road kill are shown in Table III-5.

Sage Grouse

All of the alternatives would pass through known sage grouse nesting/strutting complexes. Table III-5 indicates the number of complexes and total acres disturbed by each of the alternatives. The loss of the sagebrush canopy would not have an appreciable adverse effect on the nesting sage grouse, as less than 0.01% of the available habitat would be destroyed.

Raptors

Prairie falcon and golden eagle nests are located in the assessment area. As the entire area has yet to be surveyed, additional nests may be discovered. Construction within the recommended buffer zones during nesting periods may adversely affect nesting birds by causing nest abandonment. Also, railroads or roads constructed in the buffer zones may render the nest sites permanently unsuitable to raptors. The number of raptor nests that would be affected by each alternative is shown in Table III-5.

Threatened and Endangered Species

The only threatened and endangered species that may be affected by the sulfur transportation alternatives is the black-footed ferret. However, the possibility of their existence in the area is considered to be remote. According to the Fish and Wildlife Service, should black-footed ferrets exist in or along the construction sites or rights-of-way, disturbance by construction may force them to move out of the area at least temporarily (pers. comm., Lane 1980). It is possible the ferrets may retreat to a burrow and remain within the disturbed area, thus being exposed to the hazards of construction activities.

Construction would result in the loss of potential black-footed ferret habitat through the destruction of white-tailed prairie dog towns. Table III-5 indicates the acres of white-tailed prairie dog towns disturbed by each of the alternatives being considered. This is estimated to be less than 0.1% of the prairie dog towns existing in the assessment area.

Livestock Grazing

The number of animal unit months (AUMs) (see Glossary) lost to grazing are listed by alternative

Table III-5

TOTAL HABITAT DISTURBED AND ESTIMATED ANIMAL LOSSES BY ALTERNATIVE

	Skull Point			Muddy Creek No. 1			Muddy Creek No. 2			Dee Ranch Road No. 1			Dee Ranch Road No. 2			All Pipeline		
	Short Term	Long Term	Animal Losses Per Year	Short Term	Long Term	Animal Losses Per Year	Short Term	Long Term	Animal Losses Per Year	Short Term	Long Term	Animal Losses Per Year	Short Term	Long Term	Animal Losses Per Year	Short Term	Long Term	Animal Losses Per Year
Acres of Big Game Crucial Winter Habitat	16	3	-	64	35	-	64	35	-	230	154	-	16	3	-	31	3	-
AUMs Lost to Wildlife[4]	11	4	-	13	7	-	12	7	-	12	7	-	10	4	-	10	4	-
Road Kill (Deer)	-	-	3[1]	-	-	3[1]	-	-	3[1]	-	-	8[1]	-	-	11[1]	-	-	7[3]
Acres of Sage Grouse Strutting/Nesting Complexes	132	32	1[2]	110	28	1[2]	110	28	1[2]	166	111	4[2]	110	28	1[2]	33	10	1[2]
Number of Nesting Complexes	6	6	-	5	5	-	5	5	-	5	5	-	5	5	-	5	1	-
Acres of White-Tailed Prairie Dog Towns	72	29	-	69	31	-	69	31	-	7	5	-	72	29	-	11	1	-
Number of Raptor Nest Sites Affected	3	3	-	10	10	-	10	10	-	0	0	-	3	3	-	2	0	-

1/ Anticipated maximum loss of deer based on a comparison of Highway 189 road kill per vehicle miles with the anticipated vehicle miles on the haul road.

2/ Losses are based on an average density of one bird per 35 acres.

3/ Short-term impact while haul road would be in operation; long-term losses would be 0.

4/ Based on 10% of an average of 6.9 acres per AUM for the area, which represents the forage available for livestock and wildlife use.

in Table III-6. The close proximity of loadout facilities to lambing facilities in section 25 would disturb one sheep lambing operation in that area. This lambing operation would probably have to be moved to another area. Traffic associated with the haul route proposals could impact four sheep lambing operations adjacent to the proposed route. However, this impact is considered to be negligible, as other areas are available for these operations.

Losses would also occur as the result of human activity associated with operation and maintenance. The number of road-killed animals would probably increase in the area.

Cultural Resources

Historic

All of the alternatives would cross or parallel the Oregon Trail route. The proposed railroad in Muddy Creek No. 1 and Muddy Creek No. 2 would parallel the Oregon Trail for 7 to 8 miles, causing a high visual impact during the short term and would have a moderate impact in the long term. The other alternatives would basically cross the trail at right angles, causing a minimal visual impact; however, the haul road in the Skull Point and the Dee Ranch Road No. 2 would cause a moderate impact to a previously uncompromised section of the trail located in section 36, T. 19 N., R. 117 W.

The historical inventory completed for Chevron determined that the pipeline route would have no affect on any trail segments eligible for nomination to the National Register of Historic Places.

The Cumberland Townsite would be affected by all alternatives being analyzed. A determination of "no adverse effect" was made by BLM in a 1978 case report evaluating the impact of the proposed South Haystack coal mine spur on the townsite. The sulfur transportation routes using the same rail spur would have similar impacts to Cumberland as those identified in the report, which is available for public review in the Rock Springs District Office.

That report, prepared in compliance with Section 106 (Historic Preservation Act) procedures, determined that the proposed coal mine rail spur would affect the townsite, but that the effect was not adverse. Throughout the project life, Cumberland would be subjected to temporary visual, audible, and atmospheric impacts which are consonant with the character of the property. The original rail bed would be used, thereby not substantially altering Cumberland's setting. At the end of the project life, the rail bed may be abandoned again, which would restore Cumberland to its approximate appearance today. If the rail spur is kept for future use, that use would be compatible with the townsite's original purpose.

The Skull Point and Dee Ranch Road No. 2 alternatives would not utilize the existing rail bed and their impacts on the townsite would have to be reevaluated through a 106 compliance case study. The All Pipeline Alternative would not affect the townsites; the short-term haul route would utilize Highway 189.

Prehistoric

Surface disturbance related to construction of any facility could affect some prehistoric sites that may exist near the surface and have not been previously identified through inventory procedures (no apparent surface indication). Secondary impacts such as illegal collecting activities or vandalism could occur, and result in degradation of the prehistoric data contained in these sites.

The field work has been completed for the Class III cultural resource inventory, but to date, only the Chevron report has been received. The Chevron report primarily addressed the proposed pipeline route. Significant cultural resources were located, however, cultural clearance was recommended with stipulations to protect any resources encountered. These stipulations will be included in the right-of-way grant.

Visual Resources

The haul route paralleling Highway 189 in the Skull Point, or Dee Ranch Road No. 2 alternatives would cause moderate impacts to the visual resources along that section of the highway. Muddy Creek No. 1 or 2, Dee Ranch Road No. 1, or All Pipeline alternatives, would have low visual impacts.

Land Uses

Coal Leases and Mining

Any transportation route which passes through a coal lease area could interfere with future mining operations, but in the foreseeable future this is not likely to occur.

Transportation Network

The haul road could create drainage problems for the highway, should the locations of the drainage structures not be compatible (pers. comm., Wyoming State Highway Department 1980). Runoff coming through the haul road drainage structures would be moving at increased velocities that could damage the highway unless the water was checked or channeled through the highway drainage system.

The haul road proposed in the Dee Ranch Road No. 2 or the Skull Point alternatives would parallel Highway 189 in some places. This could create safety hazards such as:

1. The headlights from the sulfur hauling trucks could blind oncoming traffic.

2. Should the bed of the haul road be constructed at a higher level and west of the bed of Highway 189, drifting snow from the haul road could make highway travel hazardous and complicate winter maintenance.

Positive impacts resulting from the upgrading of the Dee Ranch and Muddy Creek roads include: increased safety, less dust, better maintenance, and better drainage, etc.

Energy Requirements

Table III-7 indicates the approximate energy requirements of transporting the 1,300 and 3,000 short

Table III-6

TOTAL ESTIMATED LIVESTOCK AUMS LOST PER ALTERNATIVE*

	Short Term	Long Term
Skull Point	104	36
Muddy Creek No. 1	122	65
Muddy Creek No. 2	111	60
Dee Ranch Road No. 1	110	67
Dee Ranch Road No. 2	87	40
All Pipeline	88	33

*Based on 90% of an average of 6.9 acres per AUM and the anticipated acres of disturbed vegetation portrayed in Table III-1.

Table III-7

DAILY TRANSPORTATION ENERGY REQUIREMENTS BY ALTERNATIVE
(THOUSANDS OF BTUS)[1]

Transportation Method	Alternative[2] Skull Point	Muddy Creek No. 1	Muddy Creek No. 2	Dee Ranch Road No. 1	Dee Ranch Road No. 2	All Pipeline
Haul Road	77,107	27,214	27,214	N/A	271,300	105,590[3]
Pipeline[6]	83,154	50,918	70,992	72,983	N/A	128,393
Railroad[7]	3,818	50,780	36,589	85,951	3,818	3,818
Total[8]	164,079	128,912	134,795	158,934	275,118	109,408[4] 112,211[5]

[1] BTU-British Thermal Unit
1 gallon diesel fuel=139,991 BTUs

[2] Based on all three phases of Chevron's plant or 3,000 short tons/day for Chevron and 1,300 short tons/day for Amoco.

[3] A short-term truck haul route would be required for approximately 8 months until the pipeline system is in operation.

[4] Requirements during temporary truck haul period.

[5] Requirements after pipeline system is in operation.

[6] Based on a 44° F. average annual ambient air temperature.

[7] Morrison-Knudsen Company, Inc. estimates based on computer modeling for the various alternatives.

[8] Railroad and haul road systems do not include energy requirements necessary to maintain or reheat sulfur to handling temperature, whereas a pipeline system does maintain a constant temperature. No estimate has been made on maintenance requirements.

tons of daily sulfur production from the Amoco and Chevron plant sites respectively, to the loadout points under each alternative.

Socioeconomic Conditions

The socioeconomic impacts assocated with the new sulfur transportation alternatives would primarily affect the Kemmerer/Diamondville area of Lincoln County. The regional impacts would not vary to an appreciable degree, as the numbers of employees would not change from the original proposals. Kemmerer would be the focal point for the workers involved in the construction and operation of the sulfur transportation facilities considered in this supplement. This would result in less socioeconomic impact on Evanston than stated in the original EA, although Evanston would continue to be affected by the companies' proposals. Table III-8 contains employment projections per alternative.

If the Skull Point Alternative is chosen, construction of a haul road and pipeline would require approximately 700 employees at peak construction periods (August 1981). Due to the distance between the construction sites and the existing construction camps, an additional construction camp would be needed at the Skull Point terminal area.

Chevron estimates the cost of its project to be $51.8 million and anticipates that $1-2 million of this would go to the local economy for purchase of consumables (food, gas, oil, spare parts, etc.). Chevron projects that approximately 30% of the work force should come out of the local community, and their wages would most likely be spent locally. Amoco expects $9.5 million of its total 52% million project cost would be spent in the area.

No provisions would be made by the companies for housing operation and maintenance employees, either onsite or in the Kemmerer Area. It is anticipated that the 31 persons on the permanent work forces for the loading facilities would live in neighboring communities, particularly Kemmerer, which is approximately 6 miles from the proposed Skull Point terminal site.

Key impacts would be increases in population, traffic, law enforcement, school enrollments and social services.

Population

Table III-9 summarizes the population projections resulting from the Skull Point Alternative. The major population impact would take place during the construction phase of the operation. At the peak of the construction phase, 700 employees would be required. Chevron has proposed providing accommodations for 280 construction workers at the loadout site or utilizing existing housing within the Kemmerer area. Chevron has been in contact with Kemmerer's City Council. The council has no objection to housing the construction workers in the Kemmerer area and has encouraged the utilization of an existing mobile home park. Housing for an additional 200 construction employees would be provided at the plant construction camp. Facilities for 220 Amoco construction workers would be provided at a camp near the loadout site. The Chevron plant construction camp is located near Evanston and impacts associated with the 200 construction employees housed at the plant site would be primarily localized in the Evanston area. The 500 construction employees of Amoco and Chevron housed in or near Kemmerer would have major socioeconomic impacts on the towns of Kemmerer and Diamondville, and the surrounding rural community. The largest population impacts would be primarily short term since Amoco would complete construction in 10 months and the Chevron construction work force would be reduced to approximately 60 construction employees after November 1981. In May 1982, Chevron construction employment would increase to approximately 110 workers for a short time. Under the Skull Point Alternative, the largest population increase of 976 people for Lincoln and Uinta counties would be realized during August of 1981 at the height of the construction phase.

Long-term impacts would be primarily localized in the Kemmerer and Diamondville area with permanent residences being required for 31 operation and maintenance employees. Total increases in population of 166 people are projected for 1985, when the necessary service sector employment of 25 persons would be reached (Table III-9). The anticipated increases in population under the other alternatives are shown in Table III-10.

Housing

Chevron and Amoco would mitigate some of the increased housing pressures placed on Kemmerer and Diamondville by providing temporary housing for construction employees. Construction employees brought into a region for a short work period are not expected to bring families with them. Only 25% of the construction employees residing in the area longer than one year are expected to bring their families with them. Housing requirements, under the Skull Point Alternative in the Kemmerer and Diamondville area (March 1982), would be as follows: Twenty-nine family residences and 2 bachelor residences would be required for the 60 construction workers and 16 operational personnel. An additional 2 family residences and 1 bachelor quarter would be required to house the service sector employees. All of the 25 service sector employees in place by 1985 are expected to reside in the area. Housing requirements in 1985 for operational and service sector employees are projected at 48 family and 8 bachelor residences. Housing requirements for employees under the other alternatives are shown in Table III-10.

Schools

Impacts from each alternative on school enrollments are expected during the first part of 1982 and would continue until 1985 when all operational and service sector related employees would be expected to reside in the region. Under the Skull Point Alternative, increased school enrollments of 41 pupils could be expected during spring 1982, assuming an average of 1.3 children per family and all children are of school age. Enrollment could increase to 62 pupils in 1985 using the same assumptions. Anticipated school enrollment increases under the other alternatives are shown in Table III-10.

Public Services

Under the Skull Point Alternative, during the initial construction phase, 700 employees would be housed in construction camps or in the Kemmerer area, and they would rely heavily on neighboring cities and towns like Evanston and Kemmerer for evening and weekend recreation. Evanston and Kemmerer have indicated concern for increased pressure on present law enforcement staff and facilities as discussed in the original EA.

Table III-8

ESTIMATED CONSTRUCTION AND
OPERATION/MAINTENANCE WORKFORCE
BY ALTERNATIVE[1/]

Project/Workforce	Alternative					
	Skull Point	Muddy Creek No. 1	Muddy Creek No. 2	Dee Ranch Road No. 1	Dee Ranch Road No. 2	All Pipeline
Whitney Canyon						
Construction	220	285	285	330	165	550
Operation/Maintenance	16	16	16	10	15	10
Carter Creek						
Construction	480	450	470	430	125	500
Operation/Maintenance[2/]	15	15	15	12	25	12
Total						
Construction	700	735	755	760	290	1,050
Operation/Maintenance	31	31	31	22	40	22

[1/]Peak construction workforce is estimated by BLM core team for all alternatives, with the exception of Skull Point Alternative in which company projections were used.

[2/]Estimates based on a production of 3,000 short tons of sulfur per day.

Table III-9

POPULATION PROJECTIONS RESULTING FROM THE SKULL POINT ALTERNATIVE

	Peak Construction Work Force Aug. 1981	Construction Mar. 1982	Complete Construction Aug. 1982	1983 Operation	1984 Operation	1985 Operation
Construction Employees[1]	700	60	0	0	0	0
Operation and Maintenance Employees[2]	0	16	31	31	31	31
Impact on Population						
Direct[3]	976	143	95	95	95	95
Indirect[4]	0	79	71	71	71	71
Corrected for Indirect Lag[5]	0	8	28	43	57	71
Total Impact	976	151	123	138	152	166
Resultant Total Population						
Lincoln County (Base 12,177)	12,925	12,308	12,300	12,315	12,329	12,343
Uinta County (Base county estimates provided by original EA)	16,238	16,010	15,910	13,690	13,910	14,120

1/Construction peak would be in August 1981. Chevron estimates peak construction employment at 480, and Amoco estimates peak construction employment at 220.

2/Company estimates of 15 for Chevron and 16 for Amoco.

3/Assume 30% of construction workers are supplied from the local community, and those workers employed for 8 months or less would not bring their families to this region, 25% of construction workers employed 1 year or more and 90% of operational workers would bring their families to this region. It is also assumed that the average family size is 3.3 people (1.3 children).

4/Assume 0.8 service sector jobs are required for each of the basic sector jobs in operations. Because virtually all construction employees would be housed by companies in construction camps, the service center impact would be extended as far as Salt Lake City, from which basic construction supplies, workers, other families, food, etc., would be provided. Therefore, it is assumed that service sector requirements of the area to be 0.25 to 1 through construction, and 0.8 to 1 during operations. It is assumed that virtually 100% of service sector families would live in the area, either immigrate or vacate a local job that requires immigration, and that 80% would have families.

5/Service Sector Development: Service sector includes retail and commercial services, professional services, and government services necessary to meet the needs of the expanding population. Historically, development of the service sector in rapid growth areas has lagged several years behind development of basic industry. This is due to the lead time required for financing and development, lack of suitable physical facilities for new shops and offices, and lack of housing plus high costs of living for new public employees such as teachers and nurses. In doing these projections, an arbitrary assumption has been made about the amount of lag time for service sector development. It is assumed that 10% of service sector needs would be filled in March 1982, 40% in August 1982, 60% in 1983, 80% in 1984, and 100% in 1985.

Table III-10

POPULATION, HOUSING AND SCHOOL ENROLLMENT PROJECTIONS FOR THE OTHER ALTERNATIVES

	Muddy Creek No. 1 Alternative[3] Mar. 1982 Construction	1985	Muddy Creek No. 2 Alternative[5] Mar. 1982 Construction	1985	Dee Ranch Road No. 1 Alternative[6] Mar. 1982 Construction	1985	Dee Ranch Road No. 2 Alternative[7] Mar. 1982 Construction	1985	All Pipeline Alternative[8] Mar. 1982 Construction	1985
Construction Employees	56	0	59	0	88	0	0	0	131	0
Operation and Maintenance Employees	16	31	16	31	0	22	40	40	0	22
Impact on Population										
Direct[1]	136	95	142	95	139	68	123	123	207	68
Indirect[2]	78	71	79	71	63	50	92	92	93	50
Corrected for Indirect Lag[3]	8	71	8	71	6	50	9	92	9	50
Total Impact	144	166	150	166	145	118	132	215	216	118
Additional Housing Requirements										
Family Residences	30	48	30	48	24	34	39	62	36	34
Bachelor Residences	3	8	3	8	0	6	5	10	1	6
Additional School Enrollment[4]	39	62	39	62	30	44	50	81	47	44

1/Assume 30% of construction workers are supplied from the local community, and those workers employed for 8 months or less would not bring their families to this region, 25% of construction workers employed 1 year or more and 90% of operational workers would bring their families to this region. It is also assumed that the average family size is 3.3 people (1.3 children).

2/Assume 0.8 service sector jobs are required for each of the basic sector jobs in operations. Because virtually all construction employees would be housed by companies in construction camps, the service center impact would be extended as far as Salt Lake City, from which basic construction supplies, workers, other families, food, etc., would be provided. Therefore, it is assumed that service sector requirements of the area to be 0.25 to 1 through construction, and 0.8 to 1 during operations. It is assumed that virtually 100% of service sector families would live in the area, either immigrate or vacate a local job that requires immigration, and that 80% would have families.

3/Service Sector Development: Service sector includes retail and commercial services, professional services, and government services necessary to meet the needs of the expanding population. Historically, development of the service sector in rapid growth areas has lagged several years behind development of basic industry. This is due to the lead time required for financing and development, lack of suitable physical facilities for new shops and offices, and lack of housing plus high costs of living for new public employees such as teachers and nurses. In doing these projections, an arbitrary assumption has been made about the amount of lag time for service sector development. It is assumed that 10% of service sector needs would be filled in March 1982, 40% in August 1982, 60% in 1983, 80% in 1984, and 100% in 1985.

4/School enrollments are based on 1.3 school age children per family.

5/Construction time is estimated at 1 year for Chevron and 6 months for Amoco.

6/Construction time is estimated at 18 months for both Chevron and Amoco.

7/Construction time is estimated at 8 months for both Chevron and Amoco.

8/Construction time is estimated at 1 year for both Chevron and Amoco.

Increased urban population can result in pressure being placed on public facilities. Need arises for larger sewage treatment facilities as discussed in the original EA, and increased domestic water supplies to service new residents. Increased traffic on streets and highways can result in higher maintenance costs and accelerate repaving. Increasing county population would place additional demands on existing health services as discussed in the original EA.

Personal Income and Public Revenue

Construction and operation of the proposed facilities for the Skull Point Alternative from April 1981 to March 1982 would result in approximately $5.3 million in direct personal income. (Table III-11 illustrates the direct personal income resulting from each alternative.) Local spending of a portion of these wages is expected to result in an overall increase in direct, indirect, and induced personal income to the region of approximately $7.6 million. In 1985 operational employees would be expected to earn $704,000 in direct wages, and the total direct, indirect, and induced personal income is projected to reach $928,000.

Additional revenues would be realized by local businesses for goods and services purchased by Chevron and Amoco during the construction and operation of the sulfur transportation system.

Construction and operation of the sulfur transportation system would also generate tax revenue for the local economy in the form of sales tax on direct purchases. Employees acquiring permanent residences in Lincoln County would pay ad valorem property taxes in addition to sales tax on goods purchased locally.

MITIGATION NOT INCLUDED IN THE ALTERNATIVES

This section identifies those reasonably possible mitigating measures, in addition to the standard stipulations contained in Appendix 1 of the original EA, which could be applied to eliminate or reduce adverse impacts and to enhance beneficial impacts. Mitigation measures to be accepted by BLM managers will be indicated in a subsequent decision document.

Only those mitigating measures developed for the sulfur transportation alternatives will be discussed.

Soils and Water Resources

1. Topsoil removed during construction and not needed for rehabilitation of the haul road will be spread over abandoned road beds to facilitate rehabilitation of those abandoned portions.

2. Prior to construction, the companies should provide for BLM review and approval, any site-specific plans that would involve rechannelization of streams. The District Engineer and District Hydrologist should review such plans and make any necessary recommendations for mitigation of anticipated impacts to the stream channels. The following measures are an example of the type of actions that would be considered/recommended to mitigate the impacts of stream rechannelization: (1) Install drop structures and appropriate riprap to retain original stream slope; and (2) stabilize the new stream channel banks and bottom using vegetation and riprap.

3. The construction timeframe for the channel modification should be negotiated by the companies with those affected water right permittees. The State Engineer's Office should be consulted to determine those water rights affected. If the channel construction would cause a temporary adverse affect upon the permittee's operations, the companies should be required to mitigate this affect by providing an alternate source of water during construction.

Vegetation

4. All disturbed areas no longer in use after construction should be revegetated with a seeding mixture specifically designed for the area to be applied. The seeding mixtures should be designated in the approved construction, operation, and maintenance plans.

Terrestrial Wildlife

5. Construction activity within big game crucial habitat should not be allowed between October 15 and May 15, unless authorized by the Area Manager. This would reduce harassment (see Glossary) of wintering populations in the areas most suitable for enhancing animal survival during this stress period.

6. If a sage grouse nesting/strutting complex must be entered, the actual lek center and buffer area should be avoided (Ref. Instruction Memorandum WY-81-21).

7. Construction activity within sage grouse nesting/strutting complexes should not be allowed during the strutting and nesting period of March 1 to June 15, unless authorized by the Area Manager.

8. Construction activity within raptor buffer zones should not be allowed during the raptor nesting period of March 15 to July 1 unless authorized by the Area Manager. A raptor monitoring program should be established to monitor raptor movement. The company should provide funds to defray the cost of the necessary telemetry equipment.

9. Prior to issuance of the right-of-way grant for any of the sulfur transportation routes, the presence of endangered wildlife species should be evaluated by BLM. If a "may affect" determination is made, formal consultation procedures should be initiated with the Fish and Wildlife Service.

10. All prairie dog towns that would be affected by construction activities should be surveyed for black-footed ferrets using either a method of simultaneous survey and construction or a survey preceeding construction. Survey techniques should be coordinated with BLM before implementation. If at anytime prior to or during the construction or life of the projects, black-footed ferrets are found, formal consultation with the FWS should be initiated immediately.

Cultural Resources

11. A determination of eligibility to the National Register of Historic Places should be obtained for the Oregon Trail for those affected segments whose condition justify such an action. If found eligible, a determination of effect should be obtained and, if appropriate, a mitigation plan proposed.

Table III-11

ESTIMATED PERSONAL INCOME PRODUCED FROM CONSTRUCTION AND OPERATION OF EACH SULFUR TRANSPORT ALTERNATIVE[1]

	Skull Point Alternative		Muddy Creek No. 1 Alternative		Muddy Creek No. 2 Alternative		Dee Ranch Road No. 1 Alternative		Dee Ranch Road No. 2 Alternative		All Pipeline Alternative	
	Mar. 1982*	1985	Mar. 1982*	1985	Mar. 1982*	1985	Mar. 1982*	1985	Mar. 1982*	1985	Mar. 1982*	1985
Direct Construction Wages[2]	5,238	-	4,125	-	4,237	-	6,398	-	1,085	-	5,893	-
Direct, Indirect and Induced Income from Operational Wages[3]	7,597	-	5,982	-	6,145	-	9,280	-	1,573	-	8,547	-
Direct Operational Wages[4]	28	704	120	704	28	704	-	500	300	909	-	500
Direct, Indirect and Induced Income from Operational Wages[5]	37	928	158	928	37	928	-	659	392	1,189	-	659
Total Personal Income	7,634	928	6,140	928	6,182	928	9,280	659	1,965	1,189	8,547	659

*Includes income from the beginning of construction (May 1981) to March 1982.

1/Reported in $1,000.

2/These figures were estimated using average weekly wage rates for construction employees ($353) in Uinta County, Wyoming. Source: The State and County Summary of Covered Employment and Payrolls by Industry, Employment Security Commission of Wyoming (Second Quarter 1980).

3/Using a Type II Income Multiplier of 1.4503 for Direct, Indirect and Induced Personal Income. (Source: BLM Input/Output Model.)

4/Estimated using average weekly wage rates for mining employees ($437) in Uinta County, Wyoming. Source: The State and County Summary of Covered Employment and Payrolls by Industry, Employment Security Commission of Wyoming (Second Quarter 1980).

5/Using a Type II Income Multiplier of 1.3176 for Direct, Indirect and Induced Personal Income. (Source: BLM Input/Output Model.)

12. In order to avoid an adverse effect to the Oregon Trail in section 36, T. 19 N., R. 117 W., the haul road for the Skull Point and Dee Ranch Road No. 2 alternatives should reflect the routing as indicated on Map III-1. This mitigation reroute would confine disturbance of the trail to the area previously compromised by the highway.

13. In order to avoid disturbance to any identified ruins of the Cumberland Town sites, the haul road for the Skull Point or Dee Ranch Road No. 2 alternatives should be rerouted as indicated on Map III-1.

Visual Resources

14. Any steep cuts required by construction should be tapered to blend with the terrain whenever possible.

Land Uses

15. Specific routing of sulfur transportation systems should be negotiated and documented with Federal coal lease holders to assure that the proposed route would cause the least amount of interference with future mining operations.

Transportation Network

16. The Wyoming State Highway Department should review the haul road design for compatibility with the existing and future Highway 189 in terms of centerline location, drainage structures, highway safety, and snowdrifting problem potential. Should the haul road present a problem with future highway design, the haul road should be modified to be compatible with the new design of Highway 189.

17. Headlights meeting state highway standards, should be used on the haul trucks. This would reduce some of the headlight glare that would affect the oncoming traffic where the haul road parallels Highway 189.

18. Where the haul road parallels Highway 189 on the west side and is higher than the highway, the distance separating the haul road and highway should be designed to prevent drifting of snow on the highway. (The Wyoming State Highway Department recommends that for every foot in height difference between the haul road and highway, 30 feet should separate the roads.)

19. That portion of the Dee Ranch Road from Highway 189 west to the point where the haul road turns north leaving the Dee Ranch Road (approximately 3 miles) should be upgraded to BLM road standards. This would encourage people to continue to use the Dee Ranch Road instead of that portion of the haul road running north to the loadout facility.

Socioeconomic Conditions

20. A system or a procedure should be developed whereby funds could be made available by the companies to the local government agencies during the construction period as early payment of future taxes. This would make monies available to the local governments during the construction period of the projects, when the majority of the socioeconomic impacts would occur.

UNAVOIDABLE ADVERSE IMPACTS

Air Quality

Air quality would be reduced by vehicle emissions and dust pollution from the additional vehicle traffic in the area associated with sulfur transportation operations. Fugitive dust generated following application of dust abatement measures is shown in Table III-2.

Topography

Construction of the facilities analyzed in this supplement would cause limited alterations in the natural topography. Table III-1 shows the acres modified by alternative (short-term impact).

Soils and Water Resources

An undetermined amount of increased soil erosion would occur due to short-term disturbance of lands during construction of the proposed sulfur transportation facilities as shown in Table III-1.

Vegetation

Disturbance of soils due to construction would result in a corresponding loss of vegetation and AUMs available for grazing animals. Construction activity would result in short-term AUM losses as shown in Tables III-5 and 6. After rehabilitation of short-term disturbed areas by methods discussed under mitigation, part of the soils would be returned to vegetation production. Tables III-5 and 6 lists those AUMs permanently lost during the life of the project (long term).

Terrestrial Wildlife

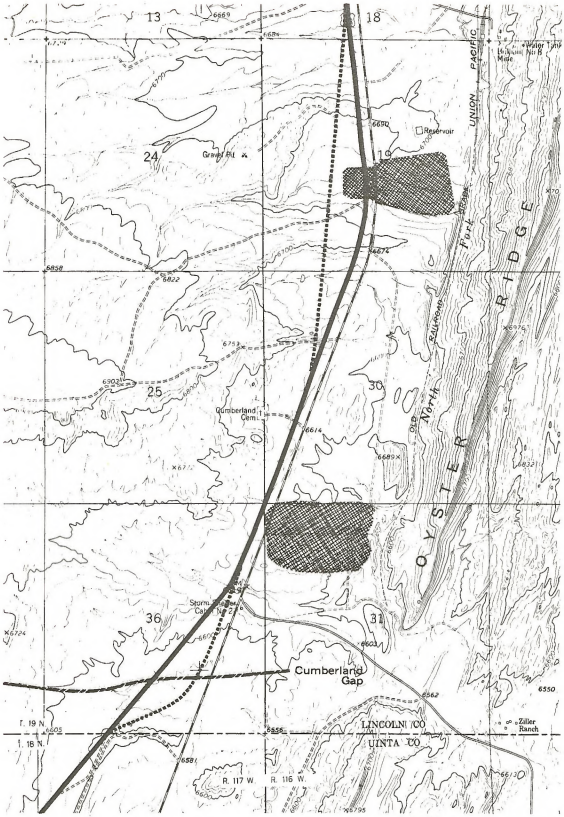
The construction of the proposed projects would result in the disturbance of big game crucial winter habitat, including the loss of forage that could be available for big game. The facilities would pass through presently identified sage grouse complexes causing unavoidable loss of habitat. A potential conflict may exist with raptor nesting. Table III-5 shows the terrestrial wildlife losses per alternative.

Livestock Grazing

Harassment of livestock would increase due to the construction of these projects, possibly resulting in lighter weight livestock (Chapter III of original EA) and disturbance of sheep in their traditional lambing areas.

Cultural Resources

See original EA-Chapter III, Unavoidable Adverse Impacts.



PROPOSED HAUL ROAD

MITIGATION REROUTING

CUMBERLAND NO. 1 AND NO. 2 TOWNSITES

OREGON TRAIL

MAP 3-1

CULTURAL RESOURCE MITIGATION

Visual Resources

See original EA-Chapter III, Unavoidable Adverse Impacts.

Socioeconomic Conditions

The influx of workers during the peak construction period would create short-term impacts on Kemmerer and Diamondville housing, schools, traffic, and services (Table III-10). Evanston would also be affected by these projects (original EA-Chapter III, Unavoidable Adverse Impacts).

RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

The authorizing actions required for the projects analyzed in this supplement would result in short-term and long-term alterations of natural resources and the human environment.

In the short term, there would be:

1. A reduction in air quality due to vehicle emissions from the transportation of the sulfur and an increase in the total suspended particulates (TSP) due primarily to increased vehicular traffic;

2. Disturbance of the soil surface resulting in a reduction of AUMs available for livestock and wildlife forage;

3. The potential destruction of undiscovered cultural resource sites;

4. A rise in the demand for housing in the Kemmerer/Diamondville area, and increased pressures on the schools, law enforcement, and other services;

5. Impeded traffic movement in the Kemmerer area due to the increased number of vehicles; and

6. Increases in the supply of valuable natural gas resources.

In the long term, there would be:

1. The loss of vegetative productivity on lands occupied by the various facilities associated with these projects;

2. Improved public facilities and services in response to demands of an increased population and increased tax revenues to Lincoln County; and

3. Additional jobs in the Kemmerer area for the operation of the proposed loadout facilities and associated new jobs in the various service sectors.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Various material used in the construction, operation, and maintenance of these facilities may not be reusable or recoverable, and thus, could be lost to future needs. Aggregate would be needed for the construction of the facilities (Table III-3). The nonrenewable energy resources necessary to transport the sulfur and to construct the facilities would be an irreversible and irretrievable commitment of resources.

Existing soil associations on lands disturbed by the facilities' construction and occupation would be lost. Soil and vegetative productivity would be lost on lands that would be occupied by the various facilities during the operation of the projects (Table III-1). This loss of soil/vegetative productivity would result in the loss of forage available to livestock and wildlife (Tables III-5 and III-6).

Changes in topography that would result from construction of these facilities would essentially be irretrievable to predisturbance condition during abandonment-restoration efforts.

CHAPTER IV
CONSULTATION AND COORDINATION

TEAM ORGANIZATION

This supplemental EA was written by a core team with assistance from an interdisciplinary team. The core team was primarily responsible for preparing this document with technical guidance and input from the special assistance team. Table IV-1 lists the additions to the team (Table IV-1, p. 80, original EA) since the original EA was prepared.

COORDINATION IN PREPARATION OF THE PROPOSED ACTION

The companies originally brought to BLM several alternatives for the transportation of sulfur from the plants. At that time, BLM indicated to the companies that the most viable route appeared to be a common corridor railroad spur to the north. The companies developed and pursued this alternative and BLM analyzed this proposal, along with several other alternatives in the original Whitney Canyon-Carter Creek EA. In response to questions and concerns with the Whitney Canyon and Carter Creek natural gas processing projects, meetings were held in BLM's Rock Springs District Office on August 5-6, 1980. BLM invited representatives of the following organizations: Amoco Production Co., Chevron U.S.A. Inc., National Wildlife Federation, Standard Oil Co. (Indiana), Sweetwater County Wildlife Association, Wyoming Game and Fish Department (WGFD), Wyoming Outdoor Council, Defenders of Wildlife, and Wyoming Wildlife Federation. Twenty persons attended the evening session Tuesday, August 5, and 26 attended the afternoon session Wednesday, August 6.

At these meetings the constraints of the various alternatives presented in the original EA were discussed. Additional sulfur transportation alternatives (routes and methods) were presented, including the possibility of a route east of the plants. It was agreed that various "corridors" radiating 360° from the plants should be developed that took into consideration all constraining factors. It was concluded that additional specific wildlife data relevant to the alternatives would be provided to the companies by the Wyoming Game and Fish Department and BLM. BLM also was to provide data to the companies on cultural resource and watershed concerns in the area. A summary of this meeting is available for review in the Rock Springs District Office.

A meeting was held in BLM's Wyoming State Office at Cheyenne on August 11, 1980, with representatives of the National Wildlife Federation, the Wyoming Game and Fish Department, and the BLM. During this meeting, the cumulative impacts to wildlife in the development of the Overthrust area were discussed.

The companies used the newly-obtained data and the "corridors" to develop alternatives, including some that had been previously considered, in consultation with BLM, WGFD, and others.

A meeting was held on September 17, 1980 to consider these sulfur transportation routes and methods. Attendees at this meeting included representatives of the following: Amoco, Chevron, Standard Oil, National Wildlife Federation, WGFD, Defenders of Wildlife, and BLM.

As a result of the discussion, BLM and WGFD indicated their preference for the Skull Point Alternative. A summary of this meeting is available for review in the Rock Springs District Office. WGFD indicated its preference for the Skull Point Alternative in a letter to the BLM Wyoming State Director (pers. comm., Marker 1980), but expressed a desire to review the specific route in order to suggest minor alterations. The National Wildlife Federation (pers. comm., Danielson and O'Meara 1980) expressed concern about the Skull Point Alternative, but felt it could offer possibilities for mitigating impacts. Because of the favorable reaction to the alternative, the companies then further developed the Skull Point Alternative.

PUBLIC CONSULTATION AND COORDINATION

During preparation of this supplement, the Wyoming Game and Fish Department was consulted extensively, and its recommendations and data were solicited. BLM has also contacted the Wyoming State Highway Department, requesting its recommendations on haul routes and data concerning aspects of the routes' development. City and county officials were consulted earlier concerning potential socioeconomic impacts of the projects. A letter expressing the concerns of the Lincoln County Commissioners is included in Appendix 7 of the Whitney Canyon-Carter Creek EA.

PUBLIC PARTICIPATION

Public wildlife interest groups were contacted and invited to attend both of the consultation meetings. The companies met December 11, 1980, with principal landowners in the area to inform them of the sulfur transportation plans, and reached a tentative agreement with the landowners for the proposed developments. BLM and WGFD also attended this meeting which was held in Evanston. The companies also met with the community leaders of the Kemmerer area to explain the proposed developments; the community leaders expressed interest and enthusiasm in bringing new economic development to Kemmerer.

The Overthrust Industrial Association met January 14, 1981, in Rock Springs with representatives of various environmental organizations to explain the projects as proposed by the companies. The association invited the following organizations to this meeting: Sierra Club, Defenders of Wildlife, High Country News, Wyoming Outdoor Council, Wyoming Wildlife Federation, and National Wildlife Federation. Amoco and Chevron held a public meeting January 20, 1981, at the Kemmerer Senior Citizen Center to explain the projects and provide the public with an opportunity to ask questions. An estimated 240 persons attended this meeting. The companies acquainted area residents with the plans for a sulfur transportation system from the natural gas processing plants to the proposed loadout facilities in the Kemmerer area. The plants, construction work force, and permanent work force were discussed.

Table IV-1

LIST OF PREPARERS (ADDITIONS)

Name	EA Assignment	Position/Expertise	Education	Experience
Linda S. Deuell	Core Team	District Writer/Editor		5 years - BLM
Vernon C. Hoffman	Wyoming State Office Environmental Coordinator	Environmental Coordinator	B.S. Agriculture, Kansas State University; B.S. Forest Management, Colorado State University, Fort Collins	3 years - BLM 16 years - FS 6 years - other Federal Service
Dean A. Decker	Special Assistance Team	District Archeologist	B.A. and M.A. Anthropology, University of California at Los Angeles	1 year - BLM 1 1/2 years - BIA
David M. McIlnay	Special Assistance Team	Realty Specialist, Kemmerer Resource Area	B.S. Forest and Range Management, Colorado State University, Fort Collins	4 1/2 years - BLM
Donald M. Schramm	Special Assistance Team	Chief, Division of Operations (Engineer)	B.S. Forest Engineering, University of Montana, Missoula	16 years - BLM
John S. Young	Special Assistance Team	Regional Economist	B.S. Animal Science, M.S. Agricultural Systems, Colorado State University, Fort Collins	3 months - BLM 1 1/2 years - CSU

PUBLIC REVIEW OF DRAFT

The draft of this supplement was sent to Federal, State, and local government agencies; the companies; and various organizations and individuals with known interests in the project. They were asked to review and comment on the draft, including the identification of additional impacts and/or mitigation. The Bureau's Rock Springs District Office also issued a news release on January 26, 1981 to local and regional news media, announcing a 30-day public review period and explained how copies of the draft supplement could be obtained.

The public review period of the draft supplement ended February 24, 1981; however, comments received through March 11, 1981, were considered equally in this final supplemental EA. Written communications were received from 17 organizations or agencies, and from 3 individuals.

PUBLIC COMMENTS AND RESPONSES

The following section contains the written communications received on the draft supplemental EA. Table IV-2 contains an index of these comments. Substantive comments have been marked, and the Bureau's responses to those comments appear in the right hand column of each page. Only those comments relating to a specific portion of the draft supplement were directly responded to. Those comments relating expressions of concern or opinion, and those directed toward the decision, will be given full consideration by BLM management prior to issuance of the final decision.

Table IV-2

INDEX OF OFFICIAL COMMENTS

Index No.	Date Received	Agency, Organization, Individual
1	3/05/81	Amoco Production Company
2	3/05/81	Chevron U.S.A. Inc.
3	2/23/81	Defenders of Wildlife
4	2/19/81	Fish and Wildlife Service
5	2/20/81	Shari Hahn
6	2/02/81	National Wildlife Federation
7	3/11/81	National Wildlife Federation
8	2/27/81	State of Wyoming, Governor Ed Herschler
9	2/27/81	State of Wyoming, Department of Agriculture
10	2/12/81	State of Wyoming, Department of Economic Planning and Development
11	3/06/81	State of Wyoming, Department of Environmental Quality
12	3/06/81	State of Wyoming, Game and Fish Department
13	2/27/81	State of Wyoming, Office of Industrial Siting Administration
14	2/27/81	State of Wyoming, Wyoming Recreation Commission
15	2/27/81	State of Wyoming, State Engineer's Office
16	2/02/81	State of Wyoming, State Highway Department
17	2/27/81	State of Wyoming, Water Development Commission
18	2/26/81	Craig D. Thompson
19	2/23/81	Rev. Ken Weimer
20	2/24/81	Edward M. Bown, Attorney for Uinta Livestock Corporation, Uinta Land & Grazing Company, and Bear River Land & Grazing Company
21	2/24/81	Wyoming Wildlife Federation

Amoco Production Company
Denver Region
Denver-Golden Building
Denver, Colorado 80202
Western Division
303-830-4040

A. M. Flores
Division Production Manager

RECEIVED
BLM ROCK SPRINGS
DISTRICT

February 27, 1981

MAR 05'81

Mr. Donald H. Sweep, District Manager
Bureau of Land Management
Post Office Box 1869
Rock Springs, Wyoming 82901

DM ... OMR ...
ADM ... SP ...
RD ... SO ...
RMMN ... BS ...
T & E ... SW ...
DES ... PNE ...
ALL PERS ... REMARKS

File: JNO-214-716

Dear Mr. Sweep:

Amoco Production Company has reviewed the draft sulfur transportation supplement dated January 23, 1981, and offers comment pursuant to your request.

1 Purpose & Need, Page III - The purpose of our request and the need for transportation is adequately stated. However, the need for a supplemental review of the proposed transportation route and mode is not covered. The comments contained in the cover letter regarding the BLM decision to reexamine the project should be included in the final document under this heading.

Chapter 1, Description of Alternatives, Page 1

2 Introduction - It is not clear why the EA covers alternatives which were not chosen or in some cases were not even suggested as being
3 viable. The wording also tends to indicate that the companies chose the proposed routes when, in fact, at the time the Wyoming Game and Fish Department (WGFD), National Wildlife Federation (NWF) and others required that the route be an easterly one.

Original Sulfur Transportation Alternatives, Page 1

4 Objectives by the WGFD, NWF et al. ((items 1 and 2) are the only reasons the original alternatives were not pursued. As an aside,
5 all UPRR traffic is east-west. The line branches at Granger, Wyoming in north-south segments of which the southern route handles a greater volume of traffic.

Skull Point Alternative, Page 1

6 Per meeting with the BLM on 2-9-81 automatic gates would not be effective in deterring 4 WD traffic and therefore unnecessary. In addition, the remote location of where the gates would be required in relationship to existing power sources would require power line and poles, transformers and additional right-of-way. Drift fences would be located in certain areas on an as-needed basis.

Haul Road, Page 6

7 The sulfur will normally be transported using a 4-axle tractor unit pulling a 4-axle tanker/trailer. The units will measure approximately 11 feet wide and 70 feet long.

Based on the anticipated average daily production level, approximately 16 trips (total) per day are required. To accomplish this, the trucks will normally run in convoys (two or three per convoy unit) and thus reduce the overall incident of truck unit to environment exposure. The actual number of trips and trucks per convoy unit will vary with the actual daily production levels.

At the rail terminal, the trucks will unload into working storage tanks and from there, insulated rail cars will be loaded at an average rate of 14 per day.

For the project to be completed on time and align with the processing plant startup, construction on the road and terminal must start by mid-April 1981. A delay in completion of the transportation system could result in block mounting of sulfur at the plant site or the use of a large number of highway legal trucks. The anticipated transportation system investment is $25 MM of which the haul road represents $15 MM.

Construction on the road is anticipated to run from May until November 1981 and will probably require a peak work force of 100. The percentage of the project ($15 MM locally spent locally will vary depending upon location of contractor but should account for about 20 per cent of the total. The terminal will take approximately 10 months to construct, require a peak work force of approximately 120 men with a total cost of $10 MM (50% spent locally).

Gas Ranch Road No. 1 Alternative, Page 6

8 In this layout, the rail system would and approximately 1 mile east of the Amoco plant, much closer than actually portrayed in Map 1-4.

All Pipeline Alternative, Page 13

9 An all pipeline alternative was never recommended by Amoco or suggested by any of the parties as a viable alternative for the following reasons:

1. The text has been revised. (See Purpose and Need.)

2. Granted, the All Pipeline Alternative was not suggested or considered viable by the companies. The inclusion of this alternative was a BLM decision in response to concern expressed by the public.

3. The introduction section relates that the companies identified the new alternatives. There is no implication of expression of choice in this section.

4. Text has been revised. (See Chapter 1, Original Sulfur Transportation Alternatives, Item 1.) The six items listed are not all applicable to an individual alternative eliminated. As indicated in the text, an alternative was eliminated for one or more of the items.

5. Text has been revised. (See Chapter 1, Original Sulfur Transportation Alternatives, Item 5, and Chapter 1, Other Alternatives Considered, Paragraph 5.)

6. Text has been revised. (See Chapter 1, Skull Point Alternative, Paragraph 1, and Chapter 1, Skull Point Alternative, Haul Road, Paragraph 3.)

7. Text has been revised. (See Chapter 1, Skull Point Alternative, Haul Road, Paragraphs 3-7.)

8. The location of the rail system layout is an approximation used for analysis purposes only.

9 1. A common pipeline from Chevron's plant is not possible because of the nature of the two different sulfur products; Chevron's product is a special degassed material and cannot be physically mixed with Amoco's.

2. Chevron's plant site is at a higher elevation than Amoco's thus preventing gravity flow. Thus high pressure pumping stations, breakout tankage and maintenance facilities would be required.

3. The transition in elevation between Amoco and Chevron's plant is not at all smooth. The multiple changes in grade (both up and down) coupled with the high pressure system present nearly insurmountable system hydraulic problems.

In addition to the above, Amoco's management is also unwilling to install an all pipeline transportation system because it believes that the technological risks involved could create an inoperable and potentially ecologically harmful system.

1. It has not been reasonably demonstrated to date that high temperature pipeline technology has advanced to the stage whereby a molten pipeline using electrical heating over a few thousand feet in length is technically feasible. Molten sulfur must be kept within a narrow temperature range (270°F to 310°F). If sufficient insulation and heat is not provided then the sulfur will "freeze" within the pipeline. Complicating matters further, while solidifying the sulfur "shrinks." Thus, under a power failure, pump breakdown or whatever, the end result would be a pipeline filled with solid sulfur. Boring a remelt to reactivate the system, the frozen sulfur (sulfur cooler than 240°F) would expand, thus tending to burst the pipe and dump sulfur on the ground.

2. In the event of a malfunction or pipeline rupture, the magnitude of a sulfur spillage is much greater than that involved with a truck.

3. The consequences of sabotage or third party tampering with a molten sulfur pipline would be devestating in comparison with a truck failure.

9. The text has been revised. (See Chapter 1, All Pipeline Alternative, Paragraphs 2 and 7.)

10 In the second paragraph in this section, reference is made to the use of conventional 40 ton trucks. The maximum legal highway limit (state law) would be only 23 short tons. Even this limit is lowered during Spring thaw and breakup conditions.

No Action Alternative, Page 13

11 If the BLM does not grant the necessary permits and right-of-ways then Amoco would probably utilize highway (legal load) trucks over the existing roads. This option is far less satisfactory than the recommended one because it involves a much larger number of trucks and utilizes a less than satisfactory road surface. Based on a five day week and two ten hour shifts, a 23 ton (net) truck would pass a given point once every 7 minutes.

Chapter II, Affected Environment, Page 21

Mineral Resources

12 Coal mines overburden of sandstone and shale is unsatisfactory for use as a base or sub-base material.

Vegetation

13 It is stated that sagebrush covers 70% of the assessment area. It is more likely that 70% of the vegetation in the area is sagebrush.

Big Game

14 Table I-2 states that the long term effect of the Skull Point alternative results in 4 lost AUM's. It is also stated that the deer, antelope, sheep, horses and cattle also compete for the same range land. Thus only a portion of these 4 AUM's would be lost to big game. Even under worst-case conditions, a fractional per cent of all the big game reported to exist in the area could be even potentially affected.

Threatened and Endangered Species, Page 24

15 It is stated that no peregrine falcon nests have been found within the assessment area, yet it also states there is good potential for peregrines to both winter and nest in or near Wyoming. It is not evident why this discussion should even be included in the section due to the generalness of its nature.

10. Text has been revised. (See Chapter 1, All Pipeline Alternative, Paragraph 7.)

11. As stated in the supplemental EA, BLM is not considering the "No Action Alternative" as a reasonable alternative for sulfur transportation.

13. Text has been revised. (See Chapter 2, Geology, Mineral Resources, Aggregate.)

13. The text is correct. The information portrayed is based on broad vegetation types and not plant species.

14. The total AUMs lost to both big game and livestock in the long term is correctly depicted in Table I-2 (40 AUMs). Of the total, approximately 4 AUMs (Table III-5) would be attributed to big game and 36 AUMs (Table III-6) to livestock.

15. A discussion of threatened and endangered species is a mandatory item and must be included in all environmental analyses.

16 Recognition should be given to a ferret survey performed on behalf of Amoco Production Company along the proposed sulfur haul road during November of 1980. The final survey report, a copy of which was forwarded to BLM on January 20, 1981, noted that no definitive sign of black-footed ferrets were found.

Another contemporary study, performed by T. Clark for the Wyoming Highway Department, produced no evidence of ferret presence in the area along U.S. Highway 189 between Kemmerer and Lassert Junction (Interstate 80). The Clark study area overlapped part of the Amoco study area and, therefore, the two studies reinforce one another's conclusions.

Socioeconomic Conditions, Page 25

17 Income and Employment - Data or estimates of income anticipated in the area due to the proposed project should be included.

Housing, Schools, Private, and Public Services

This section presents a bleak picture of the current conditions but does not even touch on how the proposed project would impact on them in the future. The impact of the project in these areas should be discussed (negative or positive) and the significance determined.

Chapter III, Environmental Consequences, Page 33

Air Quality

18 The road will be paved. It does not appear that the BLM recognizes this fact in their calculations.

Topography

19 The Skull Point (recommended) alternative is listed as having a greater impact than an rll pipeline system. This ranking is stated as being subjective, which apparently it is. Unless this can be backed with facts, its value to the EA is dubious at best.

Terrestial Wildlife - Big Game, Page 38

20 The statements in this section in regard to impacts on the animals appears to be speculative in nature due to lack of support data and background information.

16. Text has been revised. (See Chapter 3, Terrestrial Wildlife, Threatened and Endangered Species, Paragraph 4.)

17. The purpose of Chapter II-Affected Environment is to present the current conditions of the environment to be affected by the alternatives under consideration. Chapter III-Environmental Consequences is the proper place to identify and compare the impacts, both beneficial and adverse, that are expected to occur under each alternative. Income estimates under each alternative have been included in Chapter III, Socioeconomic Conditions, Table III-11.

18. Calculations on air quality are correctly based upon the premise that the road will be paved.

19. The analysis given is subjective in nature, but is based on the best available data.

20. These impacts are based on the professional judgment of BLM's and Wyoming Game and Fish Department's Biologists, using the best available data.

Raptors

21 It is more correct to address the number of raptor nests that could be effected rather than the number that would be affected because of construction or operation. There are sufficient examples of raptor nests in proximity to traffic near the project area to caution against an automatic presumption that successful nesting is incompatible with nearby activity.

Cultural Resources - Prehistoric, Page 41

22 A statement is made that the haul road could affect some prehistoric sites that had not previously been identified. It is not clear how it is known that the haul road would have an impact if it is not known that such sites exist.

Visual Resources

23 A statement is made that the haul road would have a moderate impact from Highway 189 whereas the pipeline would have a low visual impact. It is not clear whether the pipeline has a low visual impact from any point of reference or just from Highway 189. Here again this appears to be a subjective statement.

Transportation Network

24 All of the potential problems of the haul road listed could easily be mitigated. It appears that the positive effects of the haul road alternative -- increased safety along Dee Ranch Road, less dust, better maintenance of public road, improved drainage, etc. -- have been overlooked.

Energy Requirements, Page 44

25 A statement is made that the pipeline uses energy produced from coal and that the haul road system uses energy produced from crude. The inference of the entire section is that energy derived from coal is preferred over energy obtained from crude. If this is the BLM's official position the section should be expanded, otherwise it should be deleted. It is rather paradoxical that on page 21 a statement is made that if the pipeline interferes with coal mining, then it would be shut down, and yet the sulfur transportation system is an integral part of oil and gas production.

21. In the judgment of the BLM wildlife biologists, all of these nests would be effected, however, the degree of effect cannot be qualified.

22. Text has been revised. (See Chapter III, Cultural Resources, Prehistoric, Paragraph 1.)

23. The critical viewpoint for all alternatives was U.S. Highway 189. Therefore, the haul road in two of the alternatives was ranked as having a higher impact because of its proximity to U.S. Highway 189 north of Little Muddy Creek.

24. Text has been revised. (See Chapter III, Transportation Network, Paragraph 4.)

25. Text has been revised. (See Chapter III, Energy Requirements.)

Vegetation, Page 47

26 We believe there is far less than sufficient justification to conduct a three-month long search for P. condensata and S. pinnata var. gilmerana in such a manner as would cause unwarranted delay of the proposed action. It is our understanding that BLM's botanical specialist is in agreement with us on this point. The final supplement should reflect this understanding.

Terrestrial Wildlife

27 In several of the paragraphs construction activity is limited to certain time frames (unless exempted by the Area Manager) due to the presence of big game, sage grouse, etc. The EA should in these sections assess the impact (positive, negative, uncertain) of construction in the area and determine if it is severe enough to limit construction activity.

Socioeconomic Conditions, Page 48

28 It is not clear why a mitigating action (early collection of future taxes) is suggested here when no specific impact was noted in Chapter II, Affected Environment, Socioeconomic Conditions Section, Page 25.

Terrestrial Wildlife, Page 49

29 It is stated that the construction and operation will result in a disturbance to the wildlife. However, these are identified in the same area along the existing Sam Ranch Road similar wildlife forms to those that would be encountered along the new sections of the haul road. It is therefore unclear as to why one section of road would adversely impact wildlife whereas an existing section would not. Again the key element missing is the magnitude of the impact.

Socioeconomic Conditions

30 It is very doubtful and certainly not substantiated by facts, that construction on the haul road would have any impact on Kemmerer and/or Diamondville schools. The vast majority of the existing work force consist of single men and few of those, if any, that have school age children have brought them into the area.

Relationship between Short Term Uses and Long Term Productivity, Page 50

31 This entire section seems to be heavily slanted towards possible negative environmental/social/economical impacts with minimal discussion on the magnitude of the positive benefits -- especially increased tax base and income. Also, no verbage was included about the increased costs to consumers, if a less cost effective alternative was chosen or withdrawal of important resources, etc. if the project was blocked.

26. Text has been revised. (See Chapter III, Vegetation, Threatened and Endangered Plants, Paragraph 2 and Chapter III, Mitigation Not Included in The Alternatives, Vegetation.)

27. In Chapter III, the EA analyzes this using a worst case situation. As indicated, the Area Manager is responsible to review the proposed activities at the time construction would occur, to determine if conditions are present which would warrant application of this mitigation measure.

28. Chapter III, Environmental Consequences, Impacts of the Alternatives, Socioeconomic Conditions, of the draft supplemental EA addressed the impacts related to this mitigating measure.

29. The anticipated impacts of this analysis is related to all components of the proposal and not just the haul road.

30. The projected school enrollment was estimated to result from Amoco's 16 operation workers, Chevron's long-term construction workers, and those service sector workers who would come to the area. BLM concurs with your statement on the work force.

31. The text has been revised. (See Chapter III, Relationship Between Short-Term Uses and Long-Term Productivity, Item 6.)

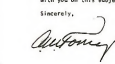
Chapter IV, Consultation and Coordination, Page 51

32 A vital element which appears to be missing in this section is the fact that the companies originally got together with the BLM and developed a common corridor rail spur to the north. Considerable sums of time and money were spent developing and pursuing this alternative up until on August 5, 1980, BLM meeting. For the next month, alternatives, some of which had been previously investigated, were further developed and subsequently presented during a meeting held on September 17, 1980. At that time, the WOPS concurred with the concept of the Skull Point alternative and then verified their position in a letter dated October 3, 1980. Based on these favorable reactions, the companies have again committed and spent a considerable amount of time and money on a new alternative.

We appreciate the opportunity to comment on the Draft supplement and hope that our suggestions are received in the same constructive spirit with which they are offered. Amoco Production Company agrees that significant adverse environmental impacts should be avoided or mitigated, especially if they are either unwarranted or unjustified. However, we believe that any test as to the significance of an adverse impact must be both reasonable and based on substantially more than mere speculation.

If you or your staff have questions concerning these comments, please bring them to the attention of our same people who are already working with you on this subject.

Sincerely,



32. The text has been revised. (See Chapter IV, Consultation and Coordination, entire section.)

2

Chevron U.S.A. Inc.
P.O. Box 599, Denver, Colorado 80201

March 2, 1981

RECEIVED
BLM ROCK SPRINGS
DISTRICT
'81

Draft Supplement to E.A.
Carter Creek/Whitney Canyon
Gas Processing Projects

DM ..... OTER .....
ADM SWD ..... SP .....
AD ..... SO .....
CHIEF ..... RS .....
T & E ..... SW .....
EES ..... PINE .....
ALL PERS ..... MTN .....

Mr. Dean Foregren
Chief, Division of Planning
& Environmental Coordination
BLM
P.O. Box 1869
Rock Springs, WY. 82901

Dear Dean:

The following are Chevron's comments on the information contained in the BLM's Draft Supplement to the Environmental Assessment covering sulfur transportation from the Carter Creek Gas Plant. The majority of the information contained herein relates to revised design criteria & specific right-of-way requirements for a gravity flow molten sulfur pipeline. Chevron's comments along with the referenced page number & section are as follows:

1. Purpose & Need - Pg. iii

1 The present markets for elemental sulfur are in the Pacific Northwest & and Gulf Coast.

2. Skull Point Alternative - Pg. 1

2 The actual length of the molten sulfur pipeline as a result of changes in routing will be 20 + miles.

3. Pipeline - Pg. 1

3 a. The outer covering on the pipeline will be black polyethylene rather than steel. Discussion of the engineering reasons for this change were contained in Chevron's 2/19/81 letter to the BLM. (Copy attached).

b. At this time it appears unlikely that the buried 4-inch waterline & 2-inch fuel gas line will be installed. Other possible sources are being investigated in the terminal area.

4. Map 1-1 - Pg. 2

4 "Proposed Nitrogen Reinjection Plant" should be changed to read "Existing Nitrogen Injection Plant."

1. Text has been revised. (See Purpose and Need, Paragraph 2.)

2. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, Skull Point Alternative, Paragraph 1 and Table I-1.)

3. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, Skull Point Alternative, Pipeline, Paragraphs 1 and 2, and Figures I-1 and I-2.)

4. Maps I-1 through I-9 and Maps II-1 through II-3 have been revised.

2

5. Figure 1-1 - Pg. 3.

5 Replace with revised right-of-way drawing. Changes reflected in the drawing include the following:

a. Due to maintenance requirements, the proposed service road should be located between the powerline & the pipeline.

b. The molten sulfur line will be 6-inch rather than 4-inch & the outside diameter of the bundle will be 18 inches rather than 15 inches.

c. The buried waterline & fuel gas lines have been removed.

6. Figure 1-1 - Pg. 4

6 Replace with revised pipeline cross-section. Changes reflected in the drawing include the following:

a. A 6-inch rather than 4-inch pipe.

b. The metal jacket has been eliminated in favor of the polyethylene as the outer cover.

c. As a safety feature, heat cables are actually contained in 1-inch steel pipe which is at zero voltage potential.

7. Pipeline - Pg. 6

7 As a result of more detailed right-of-way contour information, 3 low point drains are required rather than one. The 3 blowdown pits will be 1,830, 300 & 490 bbl. capacity respectively, and a "Doghouse" type enclosure will be provided to assure reliability of the manually operated drain valves.

8 Terminal operating personnel requirements will be 15 men.

8. Figure 1-3 - Pg. 7

9 Replace with revised drawing. Note No. 2 is changed to read - During normal operations 6" drain pipe will be installed on drain valves. Drain valve will be enclosed, insulated, electrically traced & monitored.

9. Threatened & Endangered Plants - Pg. 21

10 It is our understanding from telephone conversations with your office that the two T & E Plant species noted here are scheduled to be removed from T & E designation & that your office is heading this.

Please contact me if you have any questions regarding these comments.

J. M. Minnick
Mgr. Environmental & Proration Matters

JMM:bgac
Enclosures

5. Figure I-1 has been replaced with an updated version.

6. Figure I-2 has been replaced with an updated version. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, Skull Point Alternative, Pipeline, Paragraph 1.)

7. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, Skull Point Alternative, Pipeline, Paragraph 5.)

8. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, Skull Point Alternative, Pipeline, Paragraph 6.)

9. Figure I-3 has been replaced with an updated version.

10. Text has been revised. (See Chapter III, Vegetation, Threatened and Endangered Plants, Paragraph 2 and Chapter III, Mitigation Not Included In The Alternatives, Vegetation.)

FEB 23 '81

3

Defenders OF WILDLIFE

February 21, 1981

DM ... OPER ...
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ASMM ... BS ...
A & E ... SW ...
RBS ... PINE ...
ALL PERS ... FEB 1

Donald H. Sweep
District Manager
Bureau of Land Management
Rock Springs, Wyoming 82901

COMMENTS OF DEFENDERS OF WILDLIFE ON THE DRAFT SUPPLEMENT TO THE ENVIRONMENTAL ASSESSMENT ON WHITNEY CANYON AND CARTER CREEK NATURAL GAS PROCESSING PROJECTS.

The scope of this environmental supplement is excellent. However, serious omissions exist in assessing impacts on wildlife and habitat and in rationale for selecting Devil Dwift on the preferred alternative.

We are pleased that plans to build a railroad spur through Woodruff Narrows has been abandoned. If, as warranted, an environmental impact study had been completed on this portion of the Overthrust Belt, not only would the conflict between wintering bald eagles and a railroad have been avoided, but many other conflicts and impacts that are only now beginning to surface could have been avoided or mitigated. As is, environmental assessments now being prepared are an after-the-fact attempt to plug a leaking dike.

We do not agree that the 'preferred' Devil Point alternative is the most desirable method to transport molten sulphur and at the same time, mitigate impacts on this ecosystem.

Several statements in the assessment record of the Overthrust lead us to believe that Chevron and Amoco are not negotiating environmental issues in good faith. For instance, in the May, 1980 Final EA on Whitney Canyon and Carter Creek Projects we find this statement. "Any of the alternatives requiring a lengthy molten sulphur pipeline were considered to be technologically infeasible based on current information available at this time."

1 Barely six-months later, Chevron discovered technology to build and operate a molten sulphur pipeline almost twenty miles in length.

Was this new technology unearthed in an old issue of Popular Mechanics? Was this technology developed between the six-month period when they stated 'they couldn't,' but now, 'they can?' Or did this technology exist all along and is being used only because we objected to disrupting a huge concentration of wintering bald eagles with a railroad spur? Please evaluate these sentences.

2 We believe the best alternative for transporting molten sulphur to be a railroad spur from the plants to the main Union Pacific line east of Evanston. However, it appears the "We Can Handle It" people can't handle it (or won't). Has BLM discussed this problem with Union Pacific or was this data provided by the oil companies?

If U.P. is unwilling to move this sulphur on their main-line, there remains only one alternative that will mitigate impacts from transporting this by-product. Amoco should move sulphur from it's plant, via pipeline, to the

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DOW comments on sulphur transport Pg. 2

proposed Chevron pipeline and coordinate use of this facility.

Amoco's arguments for preferring a haul-road instead of a pipeline to be used in-common appears to be an echo of 'molten sulphur pipelines are infeasible.'

3 Chevron intends to build 20-miles of sulphur pipeline in approximately ten months, including load-out facilities. Since Amoco it would require two construction seasons for them to build only 10.5-miles of pipeline along a readily accessible route from their plant to Chevron's. Further, Amoco states their plant would begin operation before the pipeline would be completed and that un-transported sulphur would pile up over the mountain.

Of course, Amoco had to go through these gyrations intended to show an all-pipeline system to be infeasible because their management has stated they are unwilling to invest capital to build a pipeline.

It doesn't require much searching to locate fiascos that have destroyed our land and wildlife because a company was unwilling to fund rehabilitation, or do it right in the first place. We can no longer afford the loss of renewable resources to companies who say, 'We'll do it this way because it is cheaper and more expedient.'

The proposed haul-road that will be used for several decades will seriously impact mule deer, sage grouse, prairie dogs, and several raptor species. Many wildlife will be lost to road-kills. Migrations will be disrupted. Wildlife and livestock AUMs will be sacrificed. And after a few more vehicle accidents, someone will suggest fencing-off the haul-road right-of-way, which will strand migratory deer herds.

4 Further, the best documentation of probability of black-footed ferrets existing in this area comes from three ferret scats recently recovered in the vicinity of the proposed haul-road. Before a haul-road can even be considered as an alternative, a thorough study of this area must be conducted.

Because black-footed ferrets are small animals, mostly nocturnal, few in number, and not much is known about how to find them, a conclusive determination that they do, or do not exist in the haul-road area may require a lengthy study.

To even suggest that a haul-road be constructed through this area in the next few months defies intent of the Endangered Species Act and flies in the face of obligations entrusted to our generation for responsible stewardship of the land and its resources.

There remains little doubt in our mind that the all-pipeline alternative is the most environmentally acceptable method of transporting molten sulphur. Further, over many years of use it would seem that pipeline construction costs would be amortized to a cost/benefit ratio more favorable than continued expense of trucks, maintenance, drivers, fuel, road repairs, etc., required for a haul-road.

5 To portray a true picture of habitat and wildlife impacts in EA areas such as this one, we believe BLM should provide readers with cumulative impact data. For instance, we may be commenting on a project that effects only

1. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, All Pipeline Alternative.)

   Chevron has not unearthed or utilized any "new technology" that was not available at the time Sage Junction Alternative was under consideration. It is one a question of technology, but rather a determination by Chevron that the "existing" technology is adequate for a project of such magnitude. Chevron has indicated that they are willing to take the risk, given the other options available to them at present, and accept the large sums of capital. Amoco concede that they are faced with a different set of circumstances and available options, and they are not willing to take the risk of constructing a pipeline. They are, however, willing to risk constructing the truck haul road.

2. Union Pacific Railroad through personal communication with BLM, has substantiated that they would not be willing to accept additional rail traffic on the mainline rail at Evanston.

3. Text has been revised. (See Chapter I, New Sulfur Transportation Alternatives, All Pipeline Alternative.)

4. See revised text Chapter II, Terrestrial Wildlife, Threatened and Endangered Species for further information regarding threatened and endangered species study. Copies of these recent reports are available for review in BLM's Rock Springs District office.

5. The Kemmerer Resource Area Oil and Gas EA prepared in 1979 assessed the cumulative impacts of oil and gas development in the Overthrust. This document was referenced in the original Whitney Canyon-Carter Creek EA for the determination of cumulative impacts. This EA supplement was prepared to assess the impacts of sulfur transportation and as such is considered a part of the original Whitney Canyon-Carter Creek EA. The cumulative impacts presented in the original EA are applicable to the supplement.

DOW comments on sulphur transport Pg. 3

3

3 two-percent of an EA area. However, a large percentage of the habitat may have already been lost because of various impact, which makes the two-percent much more important. Using your system of non-cumulative impacts we can use-percent an EA area until there is nothing left, and yet, no one project is all that important because it is only a small portion of the whole.

Can you provide data on numbers of acres of plant-communities in the EA area that no longer exist because of drill-pads, roads, tank-batteries, pipelines, utility corridors, plant-sites, etc.? This data would aid greatly in assessing impacts on wild populations.

6 Throughout Overthrust assessment records, there is discussion concerning revegetation of disturbed areas. We are happy to learn that "Successful revegetation of plant cover for those areas would occur within five years after rehabilitation began..."

Could you provide directions so we can view a successfully rehabilitated area of about the same topography and annual moisture of the EA area? I was unaware this technology had been proven in the field - with native plants.

Given the time-frame in which this EA data was produced, we believe BLM did a good job. However, the selection of the heal-road as the preferred alternative should be re-examined, with more concerns given to the future of this land.

Thank you for the opportunity to comment on this important subject.

Dick Randall
North central representative
Defenders of Wildlife
Box 307
Rock Springs, Wyoming 82901

6. Revegetated areas in the Overthrust have exhibited "plant cover" within five years sufficient to protect the soil resource and set the stage for natural succession to occur.

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4

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
2120 Capitol Avenue, Room 7008
Cheyenne, Wyoming 82001

IN REPLY REFER TO:

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February 18, 1981

MEMORANDUM

To: District Manager, Bureau of Land Management, P.O. Box 1869, Rock Springs, Wyoming 82901

From: Ecological Services Field Supervisor, Cheyenne, Wyoming

Subject: Review of Draft Environmental Assessment, Whitney Canyon and Carter Creek Natural Gas Processing Projects

After reviewing the subject document, we concur with the Wyoming Game and Fish Department and the National Wildlife Federation in the selection of the Skull Point Alternative as the preferred proposal.

It appears from the analysis and from the data in Table III-1 that the Skull Point Alternative would be less disruptive of the environment, big game range, raptor nests, prairie dog towns, etc. in comparison with the other alternatives. We also support the mitigation measures listed on page 47.

1 Concerning endangered species formal contact should still be with the Billings office of the Area Manager; informal discussion or contacts may be made with the Area Endangered Species Team Leader, Wayne Brewster, also at this office.

We appreciate the opportunity to review the subject Environmental Assessment, and look forward in working with your agency on other projects.

Arthur W. Anderson

1. BLM will initiate Threatened and Endangered Species evaluation procedures prior to any construction authorization on public land. Should these evaluations indicate a "may affect" situation, formal consultation will be initiated. (See Chapter III, Mitigation Not Included In The Alternatives, Terrestrial Wildlife, Item 9.)

5

2500 COLLEGE DRIVE P.O. BOX 428

WESTERN WYOMING COLLEGE
ROCK SPRINGS, WYOMING 82901

February 18, 1981

Donald Sweep, Manager
Bureau of Land Management
District Office
Box 1869
Rock Springs, WY 82901

Dear Donald Sweep, Manager,

I am writing in regards to Carter Creek-Whitney Canyon Supplemental Environmental Assessment Report. It appears that this project severley threatens mule deer, grouse, and other wildlife populations in Southwestern Wyoming.

Precautionary measures are imperative. First, an Environmental Impact Statement should be done to determine the extent of the project's impact and to assure rational planning of development. Second, the all pipeling sulfer transportation alternative will have the least impact on local wildlife and vegetation.

Your considerations are greatly appreciated. Thank you.

Sincerely,

Sheri Hahn

Sheri Hahn, Instructor of Psychology

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NATIONAL WILDLIFE FEDERATION

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LUKE DANIELSON
(Student)

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February 25, 1981

Don Sweep, District Manager
Bureau of Land Management
P.O. Box 1869
Rock Springs, WY 82901

Re: Preliminary Comments on Draft Sulfur Transportation Supplement Environmental Assessment of the Whitney Canyon and Carter Creek Natural Gas Processing Projects

Dear Mr. Sweep:

The National Wildlife Federation, with over 4.5 million members and supporters, is America's largest private conservation organization. On behalf of its members, who are dedicated to the wise use and management of America's natural resources, we would like to make the following preliminary comments on the captioned subject.

These comments are not our final comments on the supplemental Environmental Assessment (EA), as we have not yet received the information we requested under the Freedom of Information Act on December 16, 1980. On February 17, Dean Forsgren agreed to extend the comment deadline until March 11, 1981. However, in spite of this extension, Mr. Forsgren agreed that our comments would be treated as if they had been received by February 24, 1981.

The National Wildlife Federation and its affiliate, the Wyoming Wildlife Federation, as parties to the BLM proceedings in this matter, respectfully request to be informed at the earliest opportunity of the Bureau of Land Management's decision on this matter.

1. The Need for an Environmental Impact Statement.

On July 15, 1980, we submitted comments on the proposed issuance of a temporary use permit or right-of-way from Woodruff Narrows Reservoir to the proposed Chevron plant site. In that letter, at pages 2-4, we discussed the massive and complex nature of the Whitney Canyon-Carter Creek projects and stated our firm

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belief that the issuance of permits on rights-of-way should be considered "major federal actions significantly affecting the quality of the human environment." Section 102(2)(c) of the National Environmental Policy Act, 42 U.S.C. § 4331, et seq.

The Whitney Canyon-Carter Creek project involves multi-million dollar expenditures, including gas pipelines, roads, toxic waste injection wells, construction camps, gas sweetening plants, sulfur transportation pipelines, electric powerlines, blowout and storage facilities, railroads and other forms of development over a large area of rural, undeveloped southwestern Wyoming. Parts of this massive project may have adverse effects on sage grouse nesting and strutting areas, critical mule deer and antelope winter ranges, and bald and golden eagle habitats. In addition, the federally-listed peregrine falcon and black-footed ferret may also be located in the area. See page 31 of the original EA.

The Council on Environmental Quality (CEQ) Guidelines, 40 C.F.R. §§ 1500-1508, are designed to assist agencies in implementing the policy of NEPA: "that all federal agencies, to the fullest extent possible, direct their policies, plans and programs to protect and achance environmental quality. . . . This requires agencies to build into their decisionmaking process, beginning at the earliest possible point, an appropriate and careful consideration of the environmental aspects of proposed action in order that adverse environmental effects may be avoided or minimized and environmental quality previously lost may be restored." 40 C.F.R. § 1500.1.

The CEQ Guidelines specifically provide that agencies construing the statutory clause "major federal actions significantly affecting the quality of the human environment" must analyze the overall, cumulative impact of the action proposed, related federal actions and projects in the area, and further actions contemplated. 40 C.F.R. § 1500.6(a).

Section 1500.6 strongly emphasizes the need to look beyond the localized, limited impact of one federal decision to the effects that many federal decisions about a project or complex of projects may have. Cumulative effects "may occur when one or more agencies over a period of years puts into a project individually minor but collectively major resources, when one decision involving a limited amount of money is a precedent for action in much larger cases or represents a decision in principle about a future, major course of action, or when several government agencies individually make decisions about partial aspects of a major federal action." 40 C.F.R. § 1509.8(a).

The Whitney Canyon-Carter Creek projects, by their complex and massive nature, will necessitate many decisions made by both the BLM and the USGS over an extended period of time. Each decision to grant a permit or right-of-way must not be analyzed in isolation. Every decision will be integrally related to past, current and future development activities which have been or may be allowed, by the USGS and the BLM. To ignore the cumulative effects of each federal decision is to contravene the letter and spirit of the law.

Other factors to be assessed in identifying major actions significantly affecting the environment include "actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial." 40 C.F.R. § 1500.8(b). Therefore, conclusions reached in the original EA and the supplement that employment and income levels are likely to rise, and local economics to benefit from the proposed projects provide further indications of the significance of the effects.

"Significant affects also include secondary effects, as described more fully, for example, in § 1508.8(a)(iii)(B)." 40 C.F.R. § 1500.6(b). Section 1500.8(a)(iii)(B) lists population and growth impacts and the affects of possible change in these areas upon the resource base, including land use, water and public services as examples of secondary affects. The discussion of "Socioeconomic Conditions" (see pages 35 through 39 and accompanying tables) in the original EA demonstrate the significant effects the projects will have on population, housing, schools, and other public services.

A cursory examination of the original EA and the supplement reveals the need for an EIS before taking major federal actions which will result in irreversible and irretrievable commitments of resources. The issuance of permits and rights-of-way by both the BLM and the USGS are major federal actions significantly affecting the quality of the human environment. As such, they trigger the requirements of § 102(2)(c) of NEPA.

2. As we have not yet received the documents we have requested under the Freedom of Information Act, we are reserving further comments on the supplemental EA, per agreement with Dean Forsgren by telephone on February 17, 1981, until March 11, 1981. This agreement is conditioned on our receipt of the documents within a reasonable time. If we do not have an opportunity to examine them by March 11, we will need an additional extension.

3. Finally, we respectfully request the following:

6

Don Sweep, District Manager
Page 4
February 25, 1981

(e) to be notified promptly of any BLM action on this matter;

(b) to be sent promptly copies of any decision made by the BLM;

(c) to be sent copies of the final supplemental EA.

Thank you for your attention.

Sincerely,

Ashley O'Connor

Ashley O'Connor
Legal Intern

dh

cc: Max Lieurance, State Director, BLM
Phil Riddle, Wyoming Game & Fish
Luke Danielson, Counsel, NWF
George Kaninski, Regional Executive, NWF
Bob Rogers, President, Wyoming Wildlife Federation
Ron Smith, Chairman, Natural Resources Committee, WWF

7

NATIONAL WILDLIFE FEDERATION

ROBERT I. GOLTEN
COUNSEL

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LUKE DANIELSON
COUNSEL

March 9, 1981

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ALL PETS ..... PDH .....

Mr. Don Sweep
District Manager
BLM
P.O. Box 1869
Rock Springs, WY 82901

Re: Comments on the Draft Sulfur Transportation Supplement to the Environmental Assessment on the Whitney Canyon and Carter Creek Natural Gas Processing Projects.

Dear Mr. Sweep:

The National Wildlife Federation, America's largest private conservation organization, is pleased to submit comments on the above captioned EA. These comments should be considered supplementary to our preliminary comments, dated February 25, 1981.

As you know, shortly before the preliminary comments were submitted, Dean Foregren agreed to extend the deadline for receipt of these comments until March 11 to allow us an opportunity to examine the documents we requested under the Freedom of Information Act on December 16, 1980. At this time, on behalf of the NWF, the Wyoming Wildlife Federation and their members, we would like to make the following comments:

1. The Requirements of the National Environmental Protection Act have not been Satisfied.

Neither the EA nor the draft supplement thoroughly analyze the impacts of the entire Whitney Canyon-Carter Creek gas processing projects as we were earlier promised by the BLM.

In our preliminary comments, dated February 25, 1981, the need for a comprehensive analysis of all the cumulative effects of the entire project, as now designed, was discussed at considerable length. The Council on Environmental Quality Guidelines, 40 C.F.R. §§ 1500-1508, cited in the preliminary comments, specifically mandate a thorough examination of the overall, cumulative

1. The EA supplement was written to analyze the impacts of the newly developed sulfur transportation alternatives. The original EA and referenced documents provided a cumulative analysis of the entire project. The EA supplement provided data that would modify the cumulative impacts.

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Mr. Don Sweep
March 9, 1981
Page 2

impact of the Action proposed, related federal actions and projects in the area, and further actions contemplated. 40 C.F.R. § 1508.8(a). The Council on Environmental Quality further states that "significant" impacts within the meaning of NEPA should be found based on:

(1) "The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973." 40 C.F.R. § 1508.27(b)(9).

We clearly have such a situation here with the bald eagle. Even if the railroad does not run through the Narrows, the destruction of deer winter range may limit the population of deer in the area. And deer are the chief food source for the eagles. Other threatened, endangered, or rare species also either certainly exist or are suspected to exist:

* the bluehead sucker, leatherside chub, and Bonneville cutthroat trout are found in the area and are classified as rare by the Wyoming Game and Fish Department. The Bonneville cutthroat is being considered for federal threatened species classification;

* black-footed ferret skeletal remains have been found nearby; the conditions for their presence exist in the project area;

* peregrine falcon may exist in the area.

(2) "Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts." 40 C.F.R. § 1508.27(b)(7) (emphasis added).

As explained above, this action is a part of a much larger project with extremely significant effects on the environment. The KNOCO and Trailblazer pipelines, the sour gas plants, gathering pipelines, loadout and storage facilities, sulfur pipelines, access roads, utility corridors, railroad spur, toxic substance injection wells, etc., are all part of a complex with massive and significant effects on the environment.

7

Mr. Don Sweep
March 9, 1981
Page 3

Other projects in the area are, as BLM acknowledges, creating a cumulative impact which must be recognized. For example, deer winter range in this project area is more important because other projects are displacing other deer winter range. See the EA at 49.

(3) "Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas." 40 C.F.R. § 1508.27(b)(3). (emphasis added).

This action clearly affects wetlands. See Decision Record at 16-18. This raises the question of whether Executive Orders 11988 and 11990 have been complied with. It also affects:

* deer winter range which BLM itself has described as "crucial;"

* one of the two largest bald eagle roosts in Wyoming; and

* numerous sage grouse strutting complexes.

Other ecologically critical areas are also affected.

Several of the other criteria listed in 40 C.F.R. § 1508.27 are also met. There is an apparent likelihood of air emission violations. This likelihood was apparently great enough to dictate plant location. The Endangered Species Act, the Bald and Golden Eagle Protection Act, Executive Orders 11988 and 11990, and other laws may--depending on circumstances--be infringed. See 40 C.F.R. § 1508.27(b)(10). Toxic substance injection may threaten groundwater quality, and hydrogen sulfide is a recognized hazard. See 40 C.F.R. § 1508.27(b)(2). The project as--as soon as the public is informed about it--going to be highly controversial. See 40 C.F.R. § 1508.27(b)(4).

We continue to maintain--as we have in our extensive previous correspondence with your agency--that the requirements of NEPA can only be satisfied by a complete EIS thoroughly analyzing the impacts of the entire project. The BLM has taken the position that the Whitney Canyon-Carter Creek projects do not generate effects having significant impacts upon the quality of the human environment. (See Decision Record Environmental Assessment Record No. WY-042-EA 80-115). In light of the narrow scope of the draft supplement, we are not optimistic that the finding following the supplement will be any different. If the BLM should issue a FONSI, it must be prepared to meet tests of NEPA as interpreted by the Courts,

In Maryland National Park and Planning Commission v. United States, 487 F.2d 1029 (D.C.Cir. 1973) the Court warned:

> We have already made clear that in cases involving genuine issues as to health and environmental resources, there is a relatively low threshold for impact statements, and that an agency that relies on an "assessment" to dispense with an impact statement may well run risks not warranted by any countervailing benefits. Id. at 1040.

The Court applied a four part test to determine when an EIS is required:

(1) Did the agency take a "hard look" rather than merely drawing "bald conclusions?"

(2) Did the agency identify and adequately investigate relevant areas of environmental concern?

(3) Does the agency make a convincing case that the impact is insignificant?

(4) If there is no impact of "true significance" has the agency convincingly established that changes in the project have sufficiently minimized it?

It is clear that the proposed projects present "genuine issues as to health and environmental resources." The influx of workers needed to construct the plants and the resulting population growth pressures which will surely follow development are matters of real concern to the towns and counties which must absorb and deal with the problems created by rapid "boom town" growth. (See e.g., letter of May 23, 1980 to Mr. Sweep from Governor Herschler and letter to Matt Brennan from Boyd L. Eddins, Chairman of the Lincoln County Commissioners, both from BLM files.)

Further, adverse impacts on sage grouse nesting and strutting areas, critical Mule deer and antelope winter ranges, and bald and golden eagle habitat present genuine issues as to environmental resources.

2 The EA and its supplement do not take a "hard look" at the impacts of the proposed projects and alternatives. For example, at p. 13 of the draft supplement, it is stated: "AMOCO has consistently stated that its management is unwilling to invest capital into a pipeline system." No reasons are given. Philosophical objections

2 to the oil pipeline alternative or economic preference of the company are irrelevant if the alternative will have the least adverse impact. A full explanation for AMOCO's unwillingness to invest in a pipeline should be given. Certainly, BLM must make an independent review of these reasons, rather than simply accepting any and all representations at face value.

We also do not believe all areas of environmental concern were
3 adequately investigated. For example, the increased population growth will cause corresponding increases in water demand and use. This problem, especially severe in drought years, is mentioned, but no real solutions are suggested, in the original EA. Governor Herschler, in his letter to Mr. Sweep dated May 23, 1980, expressed concern about this problem and the related issue of water quality which is not addressed in either the final EA or this draft supplement.

The BLM, given the massive nature of the projects, cannot make a "convincing case" that the impact is insignificant. There are simply too many primary and secondary effects which will significantly affect the quality of the human environment if the proposed permits and ROWs are granted.

The final criterion of Maryland National Park requires the agency to "convincingly establish" that changes in the project have sufficiently minimized any impact of true significance so that the impact becomes non-significant.

The BLM has taken the position in the Decision Record No. WY-062-EA 80-15, that there are no significant effects upon the quality of the human environment. Under this reasoning, one would logically assume the BLM feels no need to convincingly establish the changes in the project make the effects non-significant. In the draft supplement, however, there appears to be some acknowledgement that unavoidable adverse impacts exist. See p. 49. Apparently, although increases in population, traffic, law enforcement, school enrollments and social services are "key impacts" (Draft supplement at 44) the BLM does not feel they rise to the level of significant. Governor Herschler, in his letter to Mr. Sweep dated May 23, 1980, and Mr. Eddins in his letter to Matt Brennan disagree. Both of these Wyoming elected officials expressed concern over the significant impacts which they feel would result from the construction of the Whitney Canyon-Carter Creek projects. The socioeconomic impacts are only one example of significant effects which the BLM has tried to minimize in the EA and draft supplement.

2. See text revision. (Chapter I, New Sulfur Transportation Alternatives, All Pipeline Alternative.)

3. In relation to water demand and use, see revised text, (Chapter III, Socioeconomic Conditions, Population). Regarding water quality, no impacts were identified in the original analysis and, therefore, it was not addressed in detail.

Mr. Don Sweep
March 9, 1981
Page 6

Another change which the BLM claims will make effects of the project "insignificant" is illustrated by the alternatives presented in the draft supplement to the originally proposed Woodruff Narrows sulfur transportation route. The BLM has failed to demonstrate convincingly that the route change will sufficiently minimize significant impacts on the eagle habitat. The disturbance of the critical deer winter range will not only destroy an "incalculable" number of deer (draft supplemental EA at 38), diminishing a valuable resource, but will even if the eagle roosting areas are not directly affected, destroy the winter food source of the eagles. This significant effect is not even addressed in the draft supplement. 4

It is also inexplicable how the BLM can consider the effects of the Whitney Canyon-Carter Creek projects insignificant when it has already prepared an EIS on the NAPCO and Trailblazer pipelines, thereby finding the effects of those projects significant. Both pipelines are part of the entire proposed gas processing project. As stated in the CEQ Guidelines discussed infra and in our preliminary comments, significant impacts within the meaning of NEPA should be found based on:

> "Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. ...Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts." 43 C.F.R. § 1508.27(b)(7).(emphasis supplied).

It is unrealistic, as well as illogical, to insist the gas processing plants themselves will have only insignificant effects while admitting pipelines designed to remove the processed gas from the plants will have significant effects.

2. FLPMA.

We understand that this permit will be issued under the authority of the Federal Land Policy and Management Act, 43 U.S.C. Chapter 35. See 43 U.S.C. § 1779(a).

This requires imposition of terms and conditions which will among other things:

4. Due to the many variables and lack of support data, exact wildlife losses could not be quantified. However, it is BLM's judgment that no specific species would be subjected to significant impacts due to the low percentage of habitat loss (less than 1% in all cases). Table III-5 identified the anticipated wildlife losses under each alternative.

7

Mr. Don Sweep
March 9, 1981
Page 7

(1) "minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment," 43 U.S.C. § 1765(a)(11);

(2) "protect the interests of individuals living in the general area...who rely on fish, wildlife, and other biotic resources...for subsistence purposes," 43 U.S.C. § 1765(b)(iv);

(3) "require location of the right-of-way along a route that will cause least damage to the environment," 43 U.S.C. § 1765(b)(v); and

(4) require the use of "good engineering and technological practices," 43 U.S.C. § 1763.

There is generally no discussion of these issues in any of the documents we have seen. Until these issues have been considered, we think BLM has failed to demonstrate compliance with FLPMA.

CONCLUSION

The SWF and its affiliate, the Wyoming Wildlife Federation are convinced the impacts of the Whitney Canyon-Carter Creek projects are significant and will affect the quality of the human environment. Therefore, we respectfully request the following:

(a) that the BLM make a determination of significant impacts;

(b) that the BLM decide that an EIS must be prepared;

(c) that all processing of permits, right-of-ways and other actions allowing development of these projects be halted until the above requests are met;

(d) to be notified promptly of any BLM action on this matter;

(e) to be sent promptly copies of any decision made by the BLM; and

(f) to be sent copies of the final supplemental EA.

7

Mr. Don Sweep
March 9, 1981
Page 6

Thank you for your attention.

Very truly yours,

Ashley O'Connor
Legal Intern

AO:ebw

cc: Max Lieurance, State Director, BLM
Phil Riddle, Wyoming Game and Fish Department
Lake Danielson
Bill Rikenberry, Assoc. State Director, BLM
George Kaninski, Regional Exec. WWF
Bob Roger, President, Wyoming Wildlife Federation
Ron Smith, Chairman, Natural Resources Committee, WWF
John Wheeler, Counsel, AMOCO
Laurie Hooper, Holland and Hart

8

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

February 23, 1981

RECEIVED
BLM ROCK SPRINGS
DISTRICT
FEB 27 '81

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P & R		SW	
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ALL PETS		PZH	

Mr. Donald H. Sweep
District Manager
Bureau of Land Management
P.O. Box 1869
Rock Springs, WY 82901

Dear Mr. Sweep:

The draft sulfur transportation supplement to the environmental assessment for the Whitney Canyon and Carter Creek natural gas processing projects has been circulated for review by our state agencies. Copies of their comments are enclosed for your consideration and use. Several concerns were raised in these comments including the need for mitigation of potential impacts on agricultural operators and local government infrastructures. These concerns should be fully reconciled in the final decisionmaking document. However, the general consensus of our state agencies is that the Skull Point alternative is the proper preferred alternative. Please keep me informed of any further progress in this effort.

Yours sincerely,

EH:pcd
enclosures

cc: Max Lieurance
BLM State Director

THE STATE OF WYOMING

9

ED HERSCHLER
GOVERNOR

Wyoming Department of Agriculture

TELEPHONE: (307) 777-7321 CHEYENNE, WYOMING 82002

LARRY J. BOURNET, COMMISSIONER

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ERVIN GOSA, LYMAN
FRED NADENAU, CHUGWATER
ED HERSCHLER, GOVERNOR
DR. HAROLD TEAH, TEAH
COLLEGE OF AGRICULTURE
UNIVERSITY OF WYOMING, LARAMIE

MEMORANDUM

DATE: February 19, 1981

TO: State Planning Coordinator
Wyoming State Clearinghouse

FROM: Don Oates, Assistant Commissioner
and Liaison Officer for E.I.S. Review

SUBJECT: Sulfer Transportation Supplement - Whitney Canyon and Carter Creek Natural Gas Processing Projects

State Identifier Number 81-105

Attached are the comments of Collin Fallat, Director, Agriculture Planning & Development Division, Wyoming Department of Agriculture.

Mr. Fallat's comments reflect those of this Department.

Thank you for the opportunity to comment.

DO:jh

Interagency

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DISTRICT

FEB 27 '81

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"AGRICULTURE—the backbone of Wyoming"

THE STATE OF WYOMING

9

ED HERSCHLER
GOVERNOR

Wyoming Department of Agriculture

TELEPHONE: (307) 777-7321 CHEYENNE, WYOMING 82002

LARRY J. BOURNET, COMMISSIONER

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ED HERSCHLER, GOVERNOR
DR. HAROLD TEAH, TEAH
COLLEGE OF AGRICULTURE
UNIVERSITY OF WYOMING, LARAMIE

DATE: February 13, 1981

TO: Don Oates

FROM: Collin Fallat CF

SUBJECT: SULFUR TRANSPORTATION SUPPLEMENT TO THE ENVIRONMENTAL ASSESSMENT ON WHITNEY CANYON AND CARTER CREEK NATURAL GAS PROCESSING PROJECTS

1 The above referenced environmental analysis fails to address possible conflicts with agricultural activities. Since no land use map is included, the reviewer has no way of knowing if cropland is being impacted. If cropland does exist along the proposed route, an average 7'0" clearance of the pipeline which will be located above ground will interfere with cropping operations. If cropping operations are interfered with, how will the land owner be compensated for his loss?

2 On page 38 the EA notes that a "plumbing operation would probably have to be moved to another area". If loading buildings and related facilities are removed to accommodate loadout facilities, will the sheep operator be compensated for the loss and expenses related to relocating? Additionally, the EA fails to address possible conflicts related to moving livestock and related equipment across the pipeline right-of-way.

In general the EA fails to adequately address agricultural impacts, which are unavoidable from an above ground pipeline. I would request that the BLM reevaluate its posture related to agricultural impacts and mitigation based on my stated concerns.

CF/lms

"AGRICULTURE—the backbone of Wyoming"

1. Text has been revised. (See Chapter II, Land Uses.) Compensation for any adverse affect on privately owned irrigated pasture would be between the landowner and the company.

2. Any compensation for relocating these lambing facilities would be negotiated between the landowner or lessee and the companies since the loadout facility would be located on private land. The 7-foot clearance between the ground and the pipeline (figure I-1) is considered to be adequate to permit unrestricted livestock or equipment movement.

10

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Economic Planning and Development

BARRETT BUILDING — CHEYENNE, WYOMING 82002 — PHONE (307) 777-7284

JOHN NILAND
EXECUTIVE DIRECTOR

February 9, 1981

RECEIVED

FEB 12 1981

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIVER SPRINGS, WYOMING

Mr. John Young
Bureau of Land Management
P.O. Box 1869
Rock Springs, Wyoming 82901

Dear John:

I am enclosing a copy of my review of the Sulfur Transportation Supplement since you may not see it otherwise.

I received your corrected population estimates and have also reviewed them. I agree with all of the assumptions except the one allowing two (2) service jobs for one (1) basic job. I think your lag time for the service sector estimates are quite good.

I was able to arrive at the same total population figures using your numbers, so the problem in the original estimates appears to have been corrected. This is also true of the housing data.

Sincerely,

RECEIVED
BLM ROCK SPRINGS
DISTRICT
FEB 12'81

Joe Evans
Chief of State Planning

JE/er
Enc.

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10

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Economic Planning and Development

BARRETT BUILDING — CHEYENNE, WYOMING 82002

RECEIVED
BLM ROCK SPRINGS
DISTRICT
FEB 27'81

PHONE (307) 777-7284

JOHN NILAND
EXECUTIVE DIRECTOR

MEMORANDUM

TO: Dick Hartman

FROM: Joe Evans

DATE: February 9, 1981

SUBJ: Sulfur Transportation Supplement #81-105

DM ___ OPER ___
ADM ___ SP ___
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ADMIN ___ ES ___
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The Skull Point alternative appears to be an acceptable method of transporting the sulfur from the Whitney Canyon and Carter Creek Processing plants.

However I have some serious disagreements with the estimated population figures on page 44 and in Table III-5.

1 First, they use an estimate of 2 service jobs generated by each basic job. That is a multiplier of 3.0. That would be excessive anywhere, but in the Kemmerer/Diamondville economy it is far too high. The Lincoln-Uinta Association of Governments did a major study in late 1979, Economic Base Study for Lincoln and Uinta Counties, in which they determined that 1.8 was a more appropriate multiplier, or 0.8 service workers for each basic job. This figure is agreeable with the average annual estimates being done on the Missouri Basin Power Project near Wheatland.

Second, the figures are obviously inaccurate in both the narrative and on Table III-6 even using the multiplier of 3.0. For example, in 1985, 34 operational workers will generate 695 people or a multiplier of almost 20.5, and those same 34 workers would generate the need for 242 homes. I assume these and the other population data errors will be corrected.

2 I would be very interested in seeing why Chevron expects only 2% to 4% of its $51.4 million project will be spent in the area and Amoco expects over 71% of its $20.5 million project will be spent in the area.

3 Finally, I see no way that the Kemmerer area can produce 30% of the workers needed on the pipeline. There just aren't enough workers in such a small well-employed economy. I would estimate 15% would be the maximum.

1. Text has been revised. (See Chapter III, Socioeconomic Conditions; revisions throughout entire section.)

2. These are company projections and indicate the pipeline materials cannot be purchased locally and, therefore, will be purchased outside of the local area. The local road construction materials, etc., can be obtained locally.

3. Company sources have confirmed that this estimate (30%) is still valid.

11

MEMORANDUM

TO: Robert E. Sundin, Director of DEQ

FROM: Francis LaBarge, Water Quality Engineer
Southwest District

DATE: February 11, 1981

SUBJECT: Environmental Assessment of Draft Sulfur Transportation Supplement to the Whitney Canyon-Carter Creek Natural Gas Processing Projects.

I have reviewed the above referenced document and would like to offer the following comments.

1 If Chevron and Amoco haven't already, they should develop a spill response contingency plan. At a minimum it should address anticipated response times, containment, disposal and cleanup procedures in detail.

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ALL PERS ..... FTM

1. Contingency plans will be formalized as part of the construction, operation, and maintenance plans which will be submitted by Amoco and Chevron and reviewed by ELM. The necessary detail suggested by this comment will be taken into consideration by BLM in its review of these plans.

12

RECEIVED
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DISTRICT
MAR 06 '81

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

EARL M. THOMAS
DIRECTOR

Game and Fish Department

ADM ..... Wyoming 82002
RD ..... WATER W: TWRT
RMMN ..... RS .....
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ALL PERS ..... FTM see note 3/6

EIS 695/L2, SPC SIN 86-105
Whitney Canyon-Carter Creek
Natural Gas Processing Plants
Sulphur Transportation
Supplement--EIS/ELM
Lincoln and Sioux Counties.

Mr. Donald H. Sweep, District Manager
Bureau of Land Management
Rock Springs District
P. O. Box 1869
Rock Springs, Wyoming 82901

Dear Mr. Sweep:

The following comments and recommendations are submitted in response to the Supplemental Environmental Assessment developed to evaluate alternatives for transporting sulphur from the Whitney Canyon and Carter Creek Plants.

Amoco and Chevron asked for our recommendation for a route to be used as a transportation corridor. We advised them that a corridor in the area between Kemmerer and the Dee Ranch Road would cause the least wildlife impact. The companies subsequently developed the pipeline-truck haul proposal that sat at a train loadout facility at Skull Point. We were agreeable to this proposal because it was superior to the proposed railroad spur from Sage Junction.

1 The supplement indicates that this Department favors the Skull Point Alternative. We were not aware that any other alternatives were possible. Page 1 indicates that we prefer the Skull Point Alternative, yet at our meeting with Amoco and Chevron that was the only alternative presented. Based on the information on Page 20, we most favor the All Pipeline Alternative because of the reduced impacts to wildlife.

2 Pages 4 and 10 - Chevron's pipeline will take ten months to complete, but Amoco's would take two construction seasons. Why the disparity? Is it possible to share a sulphur pipeline? If so, habitat impacts would be lessened and Amoco would be ahead of schedule.

1. See revised text. (Chapter IV, Consultation and Coordination, Coordination in Preparation of the Proposed Action.) Wyoming Game and Fish Department employees attended all meetings relating to the development of the sulfur transportation alternatives except the All Pipeline Alternative which was developed by ELM.

2. See revised text. (Chapter I, New Sulfur Transportation Alternatives, All Pipeline Alternative.)

12

Mr. Donald H. Sweep
March 4, 1981
Page 2, EIS 495/L2

1 Any of these alternatives would be superior to the railroad alternative, but we would prefer the All Pipeline Alternative. Failing that, the Skull Point Alternative is acceptable.

Please contact us if we may be of further help on this project.

Sincerely,

H. Donald Dietz

H. DONALD DIETZ,
ASSISTANT DIRECTOR, OPERATIONS
WYOMING GAME AND FISH DEPARTMENT

WDD:KHN:mlr

cc: State Planning Coordinator
Game Division
Fish Division

13

THE STATE OF WYOMING
EXECUTIVE DEPARTMENT

ED HERSCHLER
GOVERNOR

Office of Industrial Siting Administration

SUITE 600 BOYD BUILDING CHEYENNE, WYOMING 82002 DISTRICT TELEPHONE: 307-777-7386

February 17, 1981

FEB 27 '81

BLM ROCK SPRINGS

DM	DO	OPER	
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AE		SW	
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Donald H. Sweep, District Manager
Bureau of Land Management
Post Office Box 1869
Rock Springs, WY 82901

Dear Mr. Sweep:

This letter is in response to the request for comments on the Sulfur Transportation Supplement to the Draft Environmental Impact Assessment on the Whitney Canyon and Carter Creek Natural Gas Processing Projects. The following areas of concern should be considered in the preparation of the final draft of the Environmental Assessment.

1 Several assumptions have been made concerning employment and population effects related to the construction and operation of the proposed sulfur transportation network. The source of various parameters used (Economic Base multipliers, family size, etc) should be included in the document so as to allow the reader to better evaluate their relevancy in this case. A more complete presentation of the steps used in deriving final employment and population impacts would also be helpful.

2 Related to this, the population projections presented in Table III-9 seem to be in error. The text mentions 208 service sector employees, but the 2:1 ratio presented in the table would result in only 68 service sector employees in response to the 34 permanent employees. On this basis, the long term population impacts seem to be overstated.

3 The assessment document states that bachelor quarters provided by Chevron will be located "either at the Skull Point loadout site or the Kemmerer Industrial Park." If bachelor quarters are located in Kemmerer itself, public facility demands would be much greater than if they were located away from the town and facilities such as water and sewer were provided on-site. Kemmerer is currently experiencing problems with water demand exceeding supply capabilities because the water delivery pipeline is not large enough to provide adequate flows. A solution to this problem will not be in place by the time the proposed bachelor facility would go on line. This facility would only add to the problem were it to use city water.

Kemmerer is in the process of constructing a new sewage treatment plant capable of handling future needs for the community. It is not expected to be on line until the end of the summer of 1981, so it is possible that the bachelor facility would be placing additional demands on the old plant. Other local facilities and services, particularly police protection will experience impacts as a result of the project. The actual location of the bachelor quarters

1. Sources used to formulate the assumptions made during this analysis are as follows: (1) An Old West Regional Commission survey was used to characterize the construction worker's family status; (2) Census Bureau information was used to derive the average family size figure of 3.3 people; (3) the Lincoln-Uinta Association of Governments's Economic Base Study for Lincoln and Uinta Counties was the source of the service sector job assumptions; and (4) the professional expertise of BLM's economist was used to make the lag time assumptions with regard to filling these service sector jobs.

   A detailed presentation of the steps used to derive employment and population impacts is available for review at BLM's Rock Springs District office. The length of this material precludes its publication in this document.

2. Text has been revised. (See Chapter III, Socioeconomic Conditions, Population.)

3. Text has been revised. (See Chapter III, Socioeconomic Conditions, Population.)

should be presented so that planning for impacts can go forward.

4. Page 49 of the Draft Assessment states that "A system or procedure should be developed whereby funds could be made available by the companies to the local government agencies during the construction period as early payment of future taxes." Specific impacts, the size and nature of future payments, and the timing of this assistance should be carefully spelled out. In this way, problems can be anticipated and solutions put in place in a timely manner.

5. It is not clear from the discussion whether any accomodations will be made available for construction workers who would bring their families to the area for the duration of the construction project. It is probable there would be a demand for these types of facilities, especially considering the extremely tight housing market in the Kemmerer area. Also, mobile home and recreational vehicle spaces have been heavily utilized by construction workers where they were made available in the past on other Wyoming projects. Some consideration of the feasibility of providing these types of housing alternatives should be included.

6. Some form of monitoring program should be instituted related to this project. Residency patterns of employees and their impacts on local governments ability to provide necessary public services should be included in this program. This would allow local officials to anticipate problems and to attempt to mitigate them. Also, availability of housing for both construction and operating employees should be evaluated over time.

Thank you for the opportunity to comment on the effects of this project. I hope these comments will be useful in the preparation of the final document.

Sincerely,

Steven C. Bartenhagen
Staff Economist

SCB/sm

4. This mitigating measure is outside the statutory authority of BLM and had been identified for consideration by State and local officials. The size, nature, and timing of this assistance would have to be negotiated between the companies and local government agencies.

5. The companies have not indicated that family accomodations would be provided. However, other companies having similar situations in the past have provided assistance and there is no indication that this practice would be discontinued in cases of various need. The companies involved in this project have been responsive to community needs.

6. The institution of this proposed monitoring program is not within the purview of the BLM. However, this proposed monitoring program will be brought to the attention of the Lincoln-Uinta Association of Governments for their consideration.

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Wyoming Recreation Commission

604 EAST 25TH STREET CHEYENNE, WYOMING 82002

JAN L. WILSON
Director
777-7695

COMMISSION OFFICERS
DR. CHARLES SCHWOPE
PRESIDENT
906 Yale Avenue
Powell 82435
CHARLES H. JOHNSON
VICE PRESIDENT
Box 1
Encampment 82325
RICK ULMER
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Box 1
Meeteetse 82433
WILLIAM MOFFAT
Box 1
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JACK R. DESMOND
Box 1
Alpine 83128
ALBERT SCOTT
1007 Harrison
Cheyenne 82001
DON WEEKS
1317 Kearney
Cheyenne 82001

February 9, 1981

Mr. Dick Hartman
State Planning Coordinator
2320 Capitol Avenue
Cheyenne, Wyoming 82002

Dear Mr. Hartman:

The Sulfur Transportation Supplement, Whitney Canyon and Carter Creek Natural Gas Processing Projects was received in this office on January 26, 1981. Thank you for giving us the opportunity to review the projects.

Enclosed are memoranda from our staff historian and archeologist who reviewed the projects. They indicate that provision must be made for a cultural resource survey of the project area. Such a survey is necessary before cultural clearance can be recommended by the Wyoming State Historic Preservation Officer (SHPO) for the purposes of applicable state and federal laws.

If you have any questions concerning this recommendation please contact the appropriate member of our staff.

Sincerely,

Mark Engel, Chief
Resources Division and
Deputy SHPO

FOR:

Jan L. Wilson, Director and
State Historic Preservation Officer

RECEIVED
BLM ROCK SPRINGS
DISTRICT
FEB 27 '81

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Encls.

WYOMING RECREATION COMMISSION

14

STATE HISTORIC PRESERVATION OFFICE

REVIEW AND COMPLIANCE

Interdisciplinary Staff Comments

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark G. Junge Resources Chief

FROM: Michael A. Massie, Review and Compliance Officer M.A.M.

DATE: February 4, 1981

RE: BLM, Rock Springs District, Draft Supplement to EA of White Canyon and Carter Creek Natural Gas Processing Projects, Lincoln County.

On page 24, the environmental assessment stipulates that a cultural survey will be conducted for the project and its alternatives and that before construction begins, the BLM will consult with the SHPO on the adequacy of the final report. Since this statement fulfills 36CFR800.4, I concur with this recommendation.

In addition to any historic resources found in the archeological/historical survey, the proposed project will affect the Oregon Trail and the Cumberland townsites. As stated in this environmental assessment, "all of the alternatives would cross or parallel the Oregon Trail route" (p.41). The BLM also declares that a determination of eligibility should be prepared for all of the segments affected by the project. I agree with this stipulation and wish to add that an historian should be consulted to evaluate the trail.

All of the project's alternatives will also affect the Cumberland townsites. An historian should study the effects of this undertaking upon this eligible National Register site and prepare a cultural report. I think that this site and all corresponding structures (including the Ziller Ranch) should be avoided at all costs. I concur with the BLM recommendation (p.47, #15) to reroute the Skull Point or Dee Ranch Road No.2 in order to avoid the townsites.

When the SHPO reviews these historical reports and the archeological survey of the project area, it then will make a determination of recommending historical clearance.

MAM:glb

1. Chevron and Amoco have retained BLM approved archeologists and SHPO approved historians to conduct an historical inventory and a Class III cultural resource inventory. The historians have evaluated the trail and the Cumberland townsite.

WYOMING RECREATION COMMISSION

14

STATE HISTORIC PRESERVATION OFFICE

REVIEW AND COMPLIANCE

Interdisciplinary Staff Comments

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark Junge, Chief

FROM: Thomas E. Marceau, SHPO Archeological Section Head TEM

DATE: February 9, 1981

RE: Draft Sulfur Transportation Supplement: Whitney Canyon and Carter Creek Natural Gas Processing Projects, Lincoln and Uinta Counties (WY-042-EA80-18)

2 Because "inventories have not been completed on the entire project area. . . (nor) any of the sulfur transportation alternatives"(24), cultural clearance cannot be recommended at this time.

A Class III intensive survey is suggested for both plant sites as well as all primary and alternative haul roads, pipelines, and railroad rights-of-ways. At such time as the report of these field investigations is received and reviewed by this office, a new determination will be issued. It is imperative that this report be reviewed well in advance of the issuance of the Final Environmental Assessment so that these remarks and any additional work may be included in that document.

2. The SHPO will have an opportunity to review these inventory reports as soon as they are made available to the BLM.

15

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

State Engineer's Office

HERSCHLER BUILDING — CHEYENNE, WYOMING 82002

February 3, 1981

MEMORANDUM

TO: Dick Hartman, State Planning Coordinator

FROM: Louis E. Allen, Water Resources Engineer

SUBJECT: State Identifier Number 81-105, Draft Sulfur Transportation Supplement to the Whitney Canyon and Carter Creek Natural Gas Processing Projects EA, BLM, January, 1981.

1 In connection with rechanneling a portion of Shurtleff Creek (page 36) for certain alternatives, the potential stream problems are recognized. The methods for minimizing the impacts are not suggested.

There are water rights from Shurtleff Creek and most of the other streams in the area. Any channel modifications would have to be accomplished in such a way that there would be no interference with these water rights.

I see no other water-related problems with the alternatives presented in this Sulfur Transportation Supplement.

Thank you for the opportunity to review this material. The referral memorandum is being returned as requested.

LEA/ht
cc: George L. Christopulos
State Engineer

RECEIVED
BLM ROCK SPRINGS
DISTRICT
FEB 27 '81

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1. Text has been revised. (See Chapter III, Soil and Water Resources, Paragraph A; and Mitigation Was Included in The Alternatives, Soil and Water Resources, Items 2 and 3.)

16

THE STATE OF WYOMING

Ed Herschler, Governor
Lynn Meyington, Super-Intendent and Chief Engineer

Wyoming State Highway Department

P. O. BOX 1708 — CHEYENNE, WYOMING 82001

January 29, 1981

(Environmental General)

Mr. Donald H. Swap
District Manager
Bureau of Land Management
P. O. Box 1869
Rock Springs, WY 82901

Dear Mr. Swap:

We have reviewed the draft sulfur transportation supplement to the Environmental Assessment for the Whitney Canyon and Carter Creek natural gas processing projects. Highway Department concerns are properly and adequately addressed.

We are pleased that we were consulted during the preparation of this supplement. Please extend our compliments to your staff.

Very truly yours,

William P. King

William P. King, P.E.
Environmental Services Engineer

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DISTRICT
FEB 02 '81

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17

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Water Development Commission

BARRETT BUILDING TELEPHONE: 307 777-7626 CHEYENNE, WYOMING 82002

Michael H. Rieke
Administrator

February 4, 1981

Robert H. Johnson
Chairman
Lewis Crawford
Secretary
Elmer N. Johnston
Kenneth Kennedy
William J. Kirven, Sr.
James Noble
Walter J. Fitch
Willard C. Woods
Herbert E. Green, Jr.

TO: State Planning Coordinator's Office

FROM: John Wade, Geohydrologist

RE: #81-105 Sulfur Transportation Supplement - Whitney Canyon and Carter Creek Natural Gas Processing Projects

Thank you for the opportunity to review this supplemental Environmental Assessment. The report seems to adequately address hydrologic concerns relating to water development, therefore we have no comment. Further, this agency concurs with the selection of the Skull Point Alternative as the preferred course of action.

JW:sw

Approved:
Michael Rieke, Administrator

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FEB 27 '81

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ALL PERS		KFH	

February 24, 1981

Mr. Donald H. Sweep
BLM District Manager
Box 1869
Rock Springs, Wy. 82901

Dear Mr. Sweep:

Please accept the following comments to the draft sulfur transportation supplement to the Whitney Canyon/Carter Creek Environmental Assessment.

It occurs to me from my review of the EA and the supplement that a few fundamental issues should be addressed prior to a decision. Three things must be accomplished with as little impact as possible within reasonable financial bounds.

1. production of the petroleum products
2. removal of the sulfur
3. transportation of the sulfur to a major railhead

1 I suppose this is a naive question to ask but why hasn't the immediate area around Evanston been considered for the siting of the plants? It would seem to me to be much easier to transport the gas than to transport the sulfur. Little wildlife impact would result and the additional impacts would be concentrated around Evanston where they would be easiest to deal with.

Iam concerned that the siting of these plants and the sulfur transportation plans are dividing from petroleum exploration in this area. I urge you to consider a holistic approach to all of the impact caused by oil/gas exploration in this area.

2 The draft supplement points to two alternatives; either the Skull Point alternative or the "all pipeline"alternative.

I question why the wildlife interests would support the SkullPoint alternative over the "all pipeline" route considering the affected haul roads and hauling on wildlife. Certainly no one will argue the point that a non-polluting, low impact, low noise technology would have a lower long term impact on wildlife than a haul road. This seems obvious to me from a road-kill standpoint alone.

Air quality would be best with the "all pipeline" alternative. Less aggregate used in construction means less surface disturbance elsewhere.Less livestock AUM lose means less cumulative agriculturel productivity losses. Energy costs seem to be lower (although qualified). Coal would be used in the "all pipeline" alternative,whereas liquid fossil fuels must

1. The processing plants' alternative sites were discussed in the original EA (p. 24) released in May 1980. Due to the adverse impacts associated with the alternative sites, it was concluded that the sites under consideration in the proposed action were the only reasonable locations.

2. See revised text (Chapter I, New Sulfur Transportation Alternatives, All Pipeline Alternative and Chapter IV, Coordination in Preparation of the Proposed Action). See also Comment Letter 12, Wyoming Game and Fish Department.

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2 | be used in the other alternatives. It would be more consistent with our nations energy policy to use coal.

Ineed not remind you that wildlife and agriculture is Wyomings first heritage and anything we can do to preserve agricultural productivity and protect our wildlife benefits us all.

Sincerely,
Craig D. Thompson

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Rev. Ken Weimer
507 A St.
Rock Springs, Wy. 82901

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February 23, 1981

DM ..... OPER .....
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P & E ..... SVY .....
RES ..... PINE .....
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Donald Sweep, Manager
Bureau of Land Management
District Office
Box 1869
Rock Springs, Wy. 82901

Dear Mr. Sweep:

I am writing to make known my comments on the Carter Creek-Whitney Canyon Supplemental Environmental Assessment Report.

I am concerned about this project threatening and or damaging wildlife populations such as grouse, mule deer, and others in Southwestern Wyoming.

I believe that the following should be done, concerning this project. First, an Environmental Impact Statement should be done to determine the extent of the project's impact and to assure rational planning and development. Second, the all pipeline sulfur transportation alternative should have the least impact as possible on the wildlife and vegetation in Southwestern Wyoming.

Our precious wildlife and its related habitat should be guarded carefully when such projects as the above are proposed, so as to maintain it for future generations.

Sincerely,
Rev. Ken Weimer
Rev. Ken Weimer

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EDWARD M. BOWN
ATTORNEY AND COUNSELOR AT LAW
1001 KEARNS BUILDING
SALT LAKE CITY, UTAH 84101
AREA 801 TELEPHONE 363-5383

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February 23, 1981

Mr. Dean F. Peregrin
Chief Division of Planning and Environmental Coordination
United States Department of Interior
Bureau of Land Management
Rock Springs District Office
Box 1869 Highway 187N
Rock Springs, Wyoming 82901

Re: Whitney Canyon--Carter Creek natural gas processing projects

Dear Dean:

This letter will confirm our telephone conversation yesterday that I received the BLM's draft of the environmental assessment covering the proposed Whitney Canyon and Carter Creek natural gas processing projects. It appears the various alternatives in connection with the projects set forth in the draft were fully considered and reviewed in all aspects.

In accordance with my earlier letter, we were advised in approximately August or September of 1979, that it had been proposed the oil companies should remove the sulphur from the gas wells in the Whitney Canyon and Carter Creek area northerly through Salt Creek by way of a railroad spur line to the Kemmerer highway, to connect with the main railroad line and be transported out of the area. It was our position at the time that such proposal would ultimately involve the least impact on wildlife interests and the grazing operations in the entire area.

Subsequent to the initiation of the proposal through Salt Creek, we were advised in approximately July or August 1980, that due to objection of the wildlife interests, for various reasons, the Salt Creek route had been abandoned and proposals had been made for the removal of the sulphur from the gas wells through a pipeline to be constructed by Chevron U.S.A., Inc., to run easterly from the Chevron plant site in the Carter Creek area, and by Amoco Production Company from the Amoco plant site by extremely large trucks, to travel down the Ben Ranch road in an easterly direction and then turn northerly on an additional road running parallel to the Bonanza-Kemmerer highway. We were also advised that the sulphur removed by both Chevron and Amoco would join at a point in Lincoln County, Wyoming, and thereafter be transported out of the area.

These two proposals were questioned by my clients, by reason of the fact that the sulphur removal would result in two separate routes running through the heart of the summer range of our cattle operations; the Salt Creek area has been and is being developed to the north; a newspaper article dated December 23, 1980, indicated that the Whitney Canyon and Carter Creek gas fields could possibly be connected by reason of Amoco's Kewenee Federal Well having

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Mr. Dean F. Peregrin, BLM--R.S.
Re: Whitney Canyon--Carter Creek
February 20, 1981
Page Two

discovered gas midway between the two fields, at a greater depth than the discoveries at either Whitney Canyon or Carter Creek; and this discovery would appear to at least partially confirm that an extremely huge gas field exists in the Whitney Canyon and Carter Creek areas, which will probably require further and additional development in the future.

The basic concern of my clients is premised on our earlier position that the Carter Creek and Whitney Canyon areas will probably continue to be further developed through Salt Creek in a northerly direction, and if such is the case, we will ultimately end up with not only the undesirable impact and development in the Salt Creek area heretofore objected to, but additional impact and development to the east by reason of the construction of the Chevron pipeline and the use of the haulage road by Amoco, as presently proposed.

We are aware of the many problems of the companies involved and the concerns and interests of the affected parties in the entire area, and the impact and development which will result from the processing and transporting of the gas. We are also aware of the great need for the development of all natural gas and oil resources in order to sustain our country and its economy to become less dependent on the importation of foreign mineral resources.

We have met with representatives of Chevron in connection with its pipeline proposal, and our boards are willing to work with its representatives toward the construction and use of the proposed pipeline for the removal of the sulphur from Chevron's plant. However, we still feel that the removal of the sulphur by both Chevron and Amoco through the Salt Creek area to the north will ultimately prove to have been the most desirable route and involve the least impact in the entire area, and we desire to again confirm our earlier position in accordance with and pursuant to your request for input by all interested parties preliminary to the finalization of your environmental assessment on the Whitney Canyon and Carter Creek natural gas processing projects, dated January 23, 1981.

We also recognize that the problems presented must first be considered by the BLM in order that pleasing can move forward without further delay in order that the mineral resources can be developed and marketed and we are willing to fully cooperate in the premises.

Very truly yours,

Edward M. Bown
Attorney for Uinta Livestock Corporation, Uinta Land & Grazing Company, and Bear River Land & Grazing Company

EMB/mkb

cc: Mr. Wayne Kane

Ronald K. Smith, Chairman
Natural Resources Action Committee
Wyoming Wildlife Federation
1705 Virginia Drive
Green River Wy 82935
February 18, 1981

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[illegible]

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ROCK SPRINGS, WYOMING

Mr. Donald Sweep,
District Manager
Rock Springs District
Bureau of Land Management
Rock Springs, Wyoming

Dear Mr. Sweep:

Thank you for this opportunity to comment on the Draft Sulfur Transportation Supplement to the Environmental Assessment on the Whitney Canyon and Carter Creek Natural Gas Projects.

This Supplement certainly provides a much more reasonable approach to the sulfur transportation system and routing than did the Draft EA, however, even though we have come along way in reducing wildlife impacts in this important big game area, the remaining impacts are still great. Also not to be forgotten, the social impacts that this project is and will cause are also enormous. Because of the massive impacts to the area wildlife and people it escapes me how some individuals could rule that this project will have no significant impact to the area as the Rock Springs District of the BLM has done.

Governor Ed Herschler has stated that oil and gas activity in Southwestern Wyoming will soon cause Evanston's population to increase by 10 times over what it was in 1970. Other area communities will be similarly affected. Wildlife and ranching activities are also being and will continue to be adversely impacted due to habitat distruction and increased harassment by people. At this point in time the only decision that should be made in regards to this project is when to begin the EIS process. I would strongly suggest that a comprehensive and complete EIS be undertaken as soon as possible.

When the EIS is begun I would also suggest that the BLM seriously evaluate some of the proposed alternatives outlined in this supplement. I would like to make some specific comments on a few of these alternatives.

The Skull Point Alternative is certainly a vast improvement over the proposed railroad route down the west side of the Bear River Divide, however, it is certainly not without adverse impacts. I have discussed this alternative with wyoming Game & Fish department personnel and they also agree on those points. In fact each of these Wyoming Game & Fish Department people favor alternatives other than the Skull Point alternative. None of these people can recall ever stating that they or the wyoming Game & Fish Department favored the Skull Point Alternative as you have said they did on the inside front cover of this supplement. I also believe as do these Wyoming Game & Fish Department biologists that none of the other alternatives would result in fewer impacts than the Skull Point alternative would. The tables on pages 9, 20, 34, 35, 36, 37, 39, 40, 42, and 43 confirm this point.

1. See revised text. (Chapter IV, Coordination in Preparation of the Proposed Action.) See also Comment Letter 12, Wyoming Game and Fish Department.

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Ronald Sweep, District Manager
Page 2
February 18, 1981

It appears that the all pipeline alternative would create the lowest number of impacts of the alternatives listed. I realize that Amaco has repeatedly said that they are phil- ically opposed to the pipeline concept. I would however, like to point out that just a few years ago when some of us supported the pipeline concept that both Chevron and Amaco firmly stated that transporting sulfur by pipeline was more than a very short distance was not technically feasable. Apparently Chevron has made several major breakthroughs in pipeline technology during the past few months. It would not surprise me if amaco could also show such initiative if given the opportunity. At any rate philosophically opposed or not, if pipelines are technically feasable and if pipeline alternatives cause the least amount of impacts, then pipelines are certainly the way this project should be approached. Also, since economics will certainly play a large role in the final outcome of the EIS process it would appear as though the pipeline would certainly be more economical than the sand road alternative. Amaco would over the long run save large quantities of fuel not to mention large labor and equipment costs by going with the pipeline.

Because the uranium plant site is higher in elevation than the amaco plant site, i understand that a pressure could exist in pumping the sulfur through a pipeline. if this is the case the sulfur could be trucked to the chevron plant over the existing bear river divide road and then injected into the pipeline at this point. the sulfur produced at the Chevron plant could also be piped down to the Amaco plant at which point sulfur from both plants could be piped down country along one of several possible routes.

I have also heard that amaco and chevron will be producing slightly different compounds of sulfur that they would not want to mix. this sounds a little far fetched but even if it were true, two parallel pipelines would be more preferable to a sand road or a railroad. Also, if chevron and/or amaco is adding a chemical additive to their sulfur, could not this be done somewhere besides the near river divide plant sites, so that both companies could use the same pipeline?

Thank you once more for this opportunity to comment on one of my favorite areas of wyoming. If I can provide further information please contact me.

sincerely

Ronald K. Smith, Chairman
Natural Resources Action Committee
Wyoming Wildlife Federation

cc Bob Rogers
Lake Danielson
Earl Thomas
Maxwell R. Lieurance

GLOSSARY

ANIMAL UNIT MONTH (AUM). The amount of forage one cow, five sheep, about 15 pronghorn antelope, five deer, one horse, or one moose eat(s) in one month.

HARASSMENT. Increased human activity in an area which intentionally or unintentionally disturbs and prompts livestock and/or wildlife to change their normal use of the area. Noise generated by heavy equipment, vehicular traffic on roads as well as ORV traffic in an area, incidence of poaching, and hunting activity are examples of what constitutes harassment.

KNOWN RECOVERABLE COAL RESOURCES AREA (KRCRA). An area, including Federal lands which meets minimum standards for recoverable coal deposits in accordance with accepted mining practices, as determined by the Director, U.S. Geological Survey. The Federal lands in a KRCRA are classified for coal leasing.

LEK. The site of sage grouse courtship.

MODIFIED MERCALLI SCALE. A classification of the effects produced by earthquakes of various intensities, ranging from I (felt by very few people) to XII (nearly total damage, line of sight and level distorted). An earthquake intensity of VII would produce difficulty in standing, broken furniture, waves on ponds, turbidity in water, small slides along sand or gravel banks, and damage to concrete irrigation ditches (Leet 1971).

OVERTHRUST BELT. A term used to describe an intensely faulted belt of mountain ranges which extends from northwestern Canada to southern Utah. The thrust faults referred to are low angle ruptures in the earth's crust that relieved deep compressional forces. These faults have repeatedly stacked the rock units. The surface expression of this tectonic activity is westward dipping formations exposed in numerous ridges or mountain ranges. Each ridge moved horizontally and vertically to its position along at least one thrust fault.

RIPARIAN HABITAT. Areas adjacent to streams and other bodies of water, wet meadows, springs, wells, and other waters.

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